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**Proceedings of the
18th ANNUAL JOINT SCIENTIFIC CONFERENCE**

With a theme on

**HEALTH SECTOR REFORMS:
CHALLENGES FOR
HEALTH RESEARCH IN 21st CENTURY**

with a symposium on

**DRUGS DONATIONS AND THEIR
IMPACT ON HEALTH AND
HEALTH SYSTEMS IN AFRICA**

21 – 25th February, 2000

Editors:

AY Kitua

MN Malecela

YG Matola

JK Ikingura

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UNITED REPUBLIC OF TANZANIA
NATIONAL INSTITUTE FOR MEDICAL RESEARCH (NIMR)



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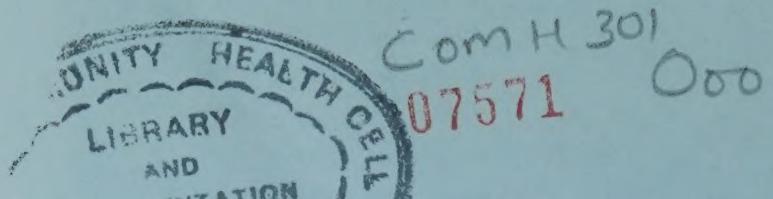


TABLE OF CONTENTS

Editorial	
Conference Organization	
Opening Speech	
OPENING SPEECH.....	10
SESSION 1: Health Sector Reforms: Challenges for Health Research in Africa in the 21st Century Inequality, Inefficiency and Poverty	23
Women's Poverty and effect on their Health: A Challenge of Health Sector Reform <i>Mlawa S</i>	25
Promoting Equity for Treated Mosquito nets: Experience from a Discount Voucher Scheme Kilombero and Ulanga Districts <i>Mushi AK, Schellenberg JM, Mponda H, Kikumbih N, Lengeler C</i>	25
Social Marketing for Health Promotion in Health Sector Reforms <i>Mponda H</i>	26
Community's Willingness to pay for Interventions to control Helminths Infections in School Children in Tanzania <i>Lwambo NJS, and Siza JE</i>	27
SESSION 2: The Emergence and Re-Emergence of Communicable Diseases: Challenges for Better Interventions	29
Bancroftian Filariasis: The Interrelationship between Transmission, Infection Host Response and Clinical Manifestations in Endemic Communities before and after Intervention. 1. Reports from an On-going eu Filariasis Project <i>Malecela MN, Ouma JH, Jaoko WG, Pedersen EM, Mukoko D, Masese N Magnussen P, Rwegoshora RT², and Simonsen PE</i>	30
Within - Village Transimission Patterns of Bancroftian Filariasis in two Communities with Different Levels of Endemicity. ii. Report from an On-going EU Filariasis project <i>Rwegoshora RT, Michael E, Pedersen EM, Mukoko D, Meyrowitsch DW and Simonsen PE</i>	31
Pro-Inflammatory Cytokines Responses Associated with Lymphatic Filarial Hydrocoele pathology and adverse reaction to chemotherapy <i>Makunde WH, Toylor MJ, Bianco AY</i>	32

Randomized, Double-Blind, Placebo-Controlled Study of Diethylcarbamazine for the Treatment of Hydrocele in an area of Tanzania Endemic for Lymphatic Filariasis <i>Bernhard P, Magnussen P, Bygbjerg IB C, Lemnge MM.....</i>	33
Malaria Epidemics In Tanzania <i>Mboera LEG and Kitua AY.....</i>	34
Diversity and Turnover Rates of Plasmodium Falciparum Subpopulations Infecting Children Living in a Holoendemic area, Northeastern Tanzania <i>Magesa SM, Mdira KY, Babiker HA, Afrangi M, Firnet A, Bygbjerg IC, Walliker D, and Jakobsen PH.....</i>	35
Therapeutic Efficacy of Amodiaquine in Children with Uncomplicated Falciparum Malaria in Muheza District, Tanzania <i>Massaga JJ, Lemnge MM, Akida AJ, Malle LN, Junghass T, Theander TG, Kitua AY, and Bygbjerg IC,</i>	36
The Efficacy of Sulfadoxine/pyremethamine in Children with Uncomplicated Falciparum Malaria in Muheza District, North Eastern Tanzania <i>Lemnge MM, Massaga JJ, Segeja MD, Ronn AM, Mhina JIK, Malle LN, Akida JA, and Bygbjerg IC</i>	37
Evaluation of the SPF66 Vaccine for Malaria Control when delivered through the Epi Scheme in Tanzania <i>Acosta CJ, Galindo CM, Schellenberg D</i>	38
Drug Resistance in <i>Plasmodium Falciparum</i> <i>Mwaiko GL.....</i>	39
Evaluation of Malaria Situation in Babati and Hanang District Northern Tanzania <i>Njunwa KJ, Salum FM, Lemnge MM Kitua AY, Makundi A, Msangeni HA, Mubyazi GM.....</i>	39
Rainfall, Cyclone and Malaria Outbreak in Eastern Usambara Mountains North Eastern Tanzania <i>Salum FM, Msangeni HA, Lemnge MM</i>	40
Emergence and Re- Emergence of Plague in Africa: Need for Appropriate Interventions in the 21st Century <i>Kilonzo BS.....</i>	41
The Effect of Plant Spacing and Intermittent Irrigation un_anopheles Mosquito Productivity in Different Varieties of rice <i>Ijumba JN, Lusewa R, Mosha FW, Tomitaka A, Madsen H, Lindsay SW.....</i>	42

Malaria Sporozoite Rates in Anopheles Gambiae SI and <i>an.funestus</i> in Northeast since 1934 - 1999 <i>Mboera LEG, and Magesa SM</i>	43
Drug Resistant Tuberculosis: A Potential Threat to Turberculosis Control Programme -which way Tanzania <i>Kunda J, Kilale AM</i>	43
The Impact of Large- Scale Crop Irrigation on Malaria in Africa <i>Ijumba JN¹², Lindsay SW²</i>	44
The Emergence and Re-Emergence of Communicable Diseases: Challenges for Better Intervention <i>Lyamuya EF and Mhalu</i>	45
SESSION 3: The Role of Traditional Medicine in Africa: Challenges to Health Researchers	47
Traditional Medicine in Africa: Invaluable Source of Revenue and Alternative Effective Medicines <i>Kitua AY</i>	48
The Tanzania Traditional Medicine Research and Development Network (TTMERD net) <i>Kitua AY, Muhame P, Nkunya M</i>	49
Bioactive Phytochemicais from Tanzania Medicinal Plants <i>Malebo HM, Nkunya MHH, and Jonker SA</i>	49
The Role of Traditional Medicine in Africa: Challenges to Health Researchers <i>Mahunnah RLA</i>	50
SESSION 4: Technological Advances and Their Impact on Health Research Diagnostic Techniques	52
Cytokine Response and Genetic Regulation in Children and Adults with Cerebral Malaria Disease <i>Rutta ASM, Sansanee C Ketsuda</i>	53
Consumption of Dark Green Leaves can Normalize Vitamin A Status in Children <i>Takyi EEK</i>	54
Schistosoma Mansoni Infection and Faecal Occult Blood in School Children of Nassa Magu District, Tanzania <i>Elias SPDN, Mugashe CL, and Magnussen P</i>	55

Diagnosis of Human Schistosomiasis by Schistosome Circulating Antigens and Parasitological Technique in Mwanza Municipality, Tanzania <i>Miyaye ND, Ghati DGK, Duri K</i>	56
Analysis of Whopes Phase III Field Trial of Bifenthrin 10WP, a new Pyrethroid Insecticide for the Control of Malaria Vectors in Flores Island, Indonesia <i>Kisinza WN, and Townson H</i>	57
The Effect of K-O Tab 1%, Mostiquaire 1% SC and Etofenprox (Vectron) 10% EW Treated on Mosquito Nets in Chiredzi <i>Lukwa N, and Chirebvu E</i>	58
The Efficiency of the CDC Light-Trap in Sampling Anthropophilic Malaria Mosquitoes: How Reliable are the Biting Rates Estimates? <i>Mboera LEG</i>	58
Software for Performing Exact Logistic Regression <i>Isingo RR</i>	59
Differentiation of <i>ycobacterium</i> Tuberculosis Strain by Amplification of Variable Number of Tandem Repeats <i>Temu MM and Plittapongampim P</i>	60
The Use of STDSIM Model in Mwanza: Design and Objectives of the Project <i>Mwita W, Todd J, Balira R, Changalucha J Ross D, Gavyole A, Hayes R, and Grosskurth H</i>	60
SESSION: 5 HEALTH SECTOR REFORMS AND ITS IMPLICATION ON HEALTH PROVISION IN AFRICA.....	62
Evaluation of the “Intergrated Management of Childhood Illness” in Tanzania <i>Armstrong Schellenberg JRM, Mswia R, Mgulula L</i>	63
Translating Research Findings into Public Health use: Using the EPI Scheme to Provide Intermittent Malaria Treatment and Iron Supllement for Prevention of Malaria and Anaemia in Infants Living in Malaria Endemic areas <i>Menendez C, Schellenberg D, Kahigwa E</i>	64
The Disrtict Health Management Team (DHMT) members of Temeke and Ilala Districts in Dar es salaam Experiences on Health Related Documentation Strategies and HSR <i>Mashombo M, and Rutaindurwa G</i>	65
Quality of Health Laboratory Services in Private Dispensaries in Mwanza Manicipality <i>Kashangaki PJ, Mclele J</i>	66

SESSION: 6 Re-Defining Community Health Problems in the Context of Health Sector Reform 67

Facing the Challenges of Re-Organizing services through Capacity Building for Better delivery, greater Utilization and Coverage: The Case of Kilosa District <i>Kimario JVK, and Mshinda H</i>	68
Decentralising the Tuberculosis Services in the Kilombero District <i>Kilonzo RG, Lwila F, Camilo A, Senkoro K</i>	69
Initial Situational Analysis of the Household Utilization of Essential Health Interventions for Childhood Illnesses in Morogoro Rural and Rufiji Districts Tanzania <i>Mayombana C, Makemba A, and Nyoni J</i>	70
Existing and preferred payment means and Mechanisms for the Poor and Vulnerable groups in Health Systems: A Case study of Korogwe District, Tanzania <i>Mubyazi GM, Mdira KY, Njunwa KJ, Massaga JJ, and Kamugisha ML</i>	71
Perceptions, Attitudes and Practices of the People Concerning Schistosomiasis and their Implications for Control in Ukerewe District, Tanzania <i>Mwanga JR, Mugashe CL, Muro AIS</i>	71
The Status of Schistosomiasis in Ukerewe Usland: Parasitological findings <i>Malenganisho, WLM, Mugashe, CL, Muro, AS</i>	72
Schistosome Mansoni related Hepatosplenic Morbidity in Ukerewe Islands Community: baseline Ultrasonographical 73 <i>Kaatano G, Spannbrucker, N, Malenganisho, W</i>	73
Field Experience in Venous Blood Puncture Sampling during Schistosomiasis Survey study in Ukerewe District, Tanzania <i>Munyeshi PBK, Kaatano G1, Mugashe CL Nestrotry Span Geka Roger</i>	74
S. Mansoni-Related Morbidity on Ukerewe Island in Lake Victoria, Tanzania: Reported symptoms <i>Mugashe CL, Mwanga JR, Isingo R</i>	74
Validity of the WHO Threshold in Screening for Schistosoma Haematobium , Morbiddity <i>Nagai HT, Lwambo NJS, Siza JE</i>	75
Evaluation of human Schistosome Circulating Antigens Survey of human Schistosomiasis in Endemic and Non-Endemic areas of Tanzania <i>Ghati DGK, Malenganisho WLM, and Nilson A</i>	76

Management of Malaria patients attending Sekou-Toure Regional Hospital, Mwanza Tanzania <i>Siza JE, Lwambo NJS, Mclele J.....</i>	77
Placental Malaria in Pregnant women from Mwanza, Tanzania: Results from a Prospective Cohort Study <i>Ndokeji SD, Watson-Jones D, Bulmer J.....</i>	78
Can Low Birthweight be useful for Assessing Malaria Exposure in Pregnancy? <i>Omari A, Uddenfeldt U, Agbaje A, Brabin B.....</i>	79
Bacterial Vaginosis during Pregnancy, Mwanza. Tanzania: Results from a Prospective Cohort Study <i>Shushu ML, Watson-Jones D, Changalucha MJ¹, Todd J.....</i>	80
Participant Observation with Rural Adolescents: A Sexual behaviour Research Tool <i>Wamoyi J, Plummer M, MshanaG, Weight D, Ross D</i>	81
In-depth Interviews with Rural Adolescents: A Sexual behaviour Research Tool <i>Mshana G, Plumber M, Wamoyi J, Weight D, Ross D</i>	82
Followup of a Cohort of Adolescents in a Community Randomised Trial in Rural Tanzania: Methods used by Mema kwa Vijana Trial in Mwanza <i>Balira R, Todd J, Ross D, Changalicha J.....</i>	84
Prevalence of HIV and Syphilis in women Attending Antenatal Clinics and in the General Population in Rural Mwanza, Tanzania <i>Changalucha JM, Grosskurth H, Ross D, Mwita W, Todd J, Hayes R.....</i>	85
Patients' HIV Sero Status: Who Should be Told? <i>Chiduo B, Nnko, S, Mwanga, J, Siza, J, Lukinda E, Wa-Shija N1, Wilson F, Mwaluko G</i>	86
The Health Referral system for AIDS and Chronically ill people: Availability and Functionality of the Service in Kalemela Ward, Magu District <i>Chiduo B Nnko, S, Mwanga, J, Siza, J, Lukinda E, Wa-Shija N1, Wison F, Mwaluko G</i>	
SESSION 7: OTHER IMPORTANT RESEARCH PAPERS	89
Myotomy in Pediatric Neurogenic Bladder Report of a Method <i>Peter G Dattan and Sergey G Bondarenko.....</i>	90
Intrabladder Ureteroureterostomy for Vesicoureteral Reflux in Duplex Ureters- a Methods for VUR Correction <i>Peter Dattani and Sergei Bondarenko.....</i>	91

Adrenaline Inhibits Nitric Oxide Production by Macrophages <i>Rutendo BL Zinyama, Sigola LB.....</i>	91
Morbidity Pattern of Parasitic and Genito-Urinary Infections among Patients Attending Amani Clinic <i>Msangeni HA, and Savaeli ZXN</i>	92
Reforms at the District Level in Tanzania: District Health Boards <i>Kalinga RB and Alilio.....</i>	93
POSTER PRESENTATIONS.....	94
Notes and Records on Onchocerciasis Survey in Tanzania <i>Mwaiko GL.....</i>	95
Onchocerciasis in Tanzania: Parasitological, Clinical and Serological Observations <i>Mwaiko GL.....</i>	95
The Emergence and Re-Emergence of Communicable Diseases: Challenges for Better Interventions <i>Isihaka I</i>	95
Re-Emergence of Tuberculosis Disease Globally: Challenges for Better Interventions in the Tanzanian Context and Perspective- an overview <i>Munema FM.....</i>	96
The Health Sector Reform from an Implementation Point of View: The DSM Medical Office of Health/DUHP Experience <i>Mtasiwa D and Pichette P</i>	97
Health Sector Reforms: A Quest for Mainstreaming <i>Comoro CJ.....</i>	98
Non-Communicable Diseases: A New Scourge to Health Systems in Africa <i>Twalib A Ngoma.....</i>	99
Health Sector Reforms and its Implication on Health Care Provision in Africa <i>Alilio M, Malecela MM and Kitua AY</i>	100
CLOSING ADDRESS	101
Financial Report.....	97
List of Participants.....	98

EDITORIAL

The National Institute for Medical Research (NIMR) held its 18th Annual Joint Scientific Conference, incorporating a Symposium on Drug Donation and their impact on Health and Health systems in Africa, from 21st -25th February 2000. The venue for the Conference was Bahari Beach Hotel in Dar es Salaam. The Conference brought together researchers and research clients including health related donors, NGO's, health workers, trainers of health workers, policy and decision-makers, representatives of special interest groups and mass media.

NIMR recently revised its objectives to ensure their compliance with the reality of numerous reforms taking place in various government sectors including the social sector. The reforms are directed towards redefining the role of the government in service provision while enhancing the role of the community in provision of quality services. On that view, the major theme for the conference was "**Health Sector Reforms: Challenges for Health Research in Africa in the 21st Century**".

The programme for the conference included plenary and parallel sessions, which received and discussed and commissioned state of the art lectures, scheduled in seven conference sub-themes namely;

- Redefining Community Health Problems in the Context of Health sector Reforms
- Inequity, Inefficiency, and Poverty: Challenges for Health Sector Reforms
- The Emergence and re-emergence of Communicable Diseases: Challenges for Better Interventions
- The Role of Traditional Medicine in Africa: Challenges to Health Researchers.
- Health Sector Reforms and its Implication on Health Provision in Africa
- Technological Advances and their impacts on Health Research
- Non-communicable Diseases: a New Scourge to Health Systems in Africa

The Conference incorporated a symposium on, **Drug Donations and their Impact on Health and Health Systems in Africa**. This Symposium brought together policy makers, representatives of drug donation programmes, control programme managers, NGO's and

researchers to discuss the impact these donations on health and health systems particularly in the East African region. The symposium will focused on broad aspects of donation programme both at a global level in the region followed by an in depth look at programmes currently in place in Tanzania. The main issues considered included appropriateness of the donations, donation policies of both drug companies and recipient governments, logistics of the donation process and eventually the impact of these donations on the health systems.

The symposium programme included a keynote address from the Chief Medical Officer of Tanzania, followed by a number of lead talks from the representatives of drug donation companies and subsequently by “on the ground” experiences from programme managers, DMO’s and NGO’s involved in various programmes. The symposium culminated in a session on recommendations that ensue from varied discussions resulting from the presentations. It is envisaged that the recommendations will set in place in improving donations programmes in the region.

As NIMR will be celebrating its 20th Anniversary this year, The Institute, was established by an act of parliament in 1979, and began operating officially in 1980. Celebrations to mark achievements of the Institute were launched at the Conference. The culminations of these activities were to be held in October, which marked, the time when NIMR was actually officiated.

CONFERENCE ORGANIZATION

National Institute for Medical Research (NIMR)

The National Institute for Medical Research (NIMR) is an autonomous public Institution under the Ministry of Health, established by the Act No. 23 of Parliament in 1979. The Act mandated the Institute to carry out, promote, coordinate, monitor and evaluate health research in Tanzania. Also the Institute is responsible for dissemination of health research results to researchers and other research clients and promotion of their utilization.

In fulfilling its mandates, NIMR has been organizing and holding Annual Joint Scientific Conferences (AJSC) consecutively since 1982, in which NIMR scientific and technical staff in collaboration with other researchers and research clients meet and discuss research findings, make recommendations on their utilization and identify priority problems requiring immediate research. This year NIMR is held its 18th AJSC with a theme "**Health Sector Reforms: Challenges for Health Research in Africa in the 21st Century**".

While celebrating its 20 birthday, NIMR, is a young parastatal of the Ministry of Health, formed after the collapse of the East African Community, and its institutions in 1977. The Tanzania Government felt the need to establish a national health research institution that would undertake research on behalf of the Tanzania Government. The National Institute for Medical Research is therefore the legal and natural successor to the defunct East African Medical Research Council, which undertook medical research in the partner states of Tanzania, Kenya and Uganda. The Institute however differs from the (EAMRC) in that it is fully answerable to the Tanzania Government though the Ministry of Health.

In 1979, the Tanzania Government found it essential to establish NIMR mainly because many of our health problems are area specific. There was therefore a need to undertake Totally based research that would specifically focus on these problems and produce research results that are directly applicable to our particular environment and circumstances.

Although 20 years is a short time in the life of an institution, and especially so, a health research institution and despite the persisting very unfavorable economic situation during which NIMR was conceived and developed, there have been notable achievements: The Institute has implemented a commendable manpower recruitment and training programme.

There are now around 60 qualified researchers on various fields. NIMR has also opted to concentrate on Tanzania's major communicable diseases, which are our leading causes of suffering and death; testing or developing tools for more appropriate diagnosis, prevention and control of these major diseases; and health systems research. Results from some of these studies are already contributing to the improvement of health care in Tanzania and beyond.

National Health Research Forum

The Tanzania National Health Research Forum is a mechanism composed of partner institutions in health research and their representatives. It is an inclusive body which ensures that each partner has a clearly defined role, is considered an asset and share in the ownership of the mechanism. Its functions are based on the Essential National Health Research (ENHR) Strategy which ensures that evidence —based information is utilized correctly in the policy and decision making process, enhancing the provision of better and equitable health to the population.

The Forum is a consultative and advisory body to policy and decision-makers as regards health research coordination, undertaking, collaboration, and dissemination of health research results and enhancing utilization of research results for policy and decision-making. It is a non-political, non-religious voluntary body dealing only with issues of health research and development in the country.

The National Health Research Forum (NHRF) was augured in Arusha at New Arusha Hotel Gardens on 26 February 1999, by Honorable Dr. Aaron Chiduo (MP) and Minister for Health. This year the Forum took pride to celebrate its 1st Annual Meeting of the Forum and run its programme activities concurrently with the conference.

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OPENING SPEECH

DR A. D. CHIDUO (MP) MINISTER FOR HEALTH

Mr. Chairman,
Distinguished Guests,
Conference Participants,
Ladies and Gentlemen

Let me, from the outset, express my sincere gratitude for the invitation to officiate this opening ceremony of the 18th Annual Joint Scientific Conference of the National Institute for Medical Research (NIMR) which incorporates a symposium on Drug Donations and their Impacts on Health and Health Systems in Africa. On behalf of the Government of the United Republic of Tanzania, and on my own behalf, I wish to welcome to Tanzania, all distinguished guests and conference participants from other countries. I wish also to welcome all other Tanzanian participants to Dar es Salaam. May I also salute you all, HAPPY NEW YEAR, HAPPY NEW CENTURY and! HAPPY NEW MILLENNIUM!

Mr. Chairman if I may, the above salutations remind us of one very important thing in connection with this conference. For the coming four days, participants will present, discuss and finally deliberate on the theme of this conference "***Health Sector Reforms and the Challenge for Health Research in the 21 Century***". We have just entered into a new century and a new millennium, having left behind us a history of dazzling drama of human progress and human conflict. More than 20 years ago nations committed themselves to the very important objective of global health equity. The Alma-Atta Conference in 1978 endorsed the goal of Health for all (HFA) the Year 2000, and declared primary health care to be the mechanism for achieving this goal. Although we are still far away from its attainment, the commitment is still there. Persisting national political, social and financial commitment, with clear policy and administrative guidelines that reach to the periphery, strong management capabilities that can implement the programmes, including management information systems that tract equity and effectiveness and point toward those who are especially at risk, health

personnel oriented and trained to as to understand and have their own commitment to the implementation, of Primary Health Care, decentralization to district and sub-district levels so that management decisions can be made with close relevance to local community participation with active involvement in local decisions about PHC planning and implementation, sustained financing, preferably with community in-put to the extent that it will engender a sense of ownership but without inhibition of usage, all these attest to our commitment in attaining this objective, of HFA in the 21st Century.

Mr. Chairman, our commitment, however, has not been met without hurdles, (the national policy that does not encourage social commitment financing of health services that are not linked to and supportive of equity and cost-effectiveness objectives, health personnel without the training and orientation required to either understand or implement PHC communities uninvolving in either the planning or implementation of PHC programmes, management systems that are inadequate to guide services towards either universal coverage or even those most in need, and district health services that do not serve as a distinctive framework for the management of health services, including the integration of PHC with related referral care. These have been some of stumbling blocks to the attainment of our commitment.

Besides these hurdles the health systems of most developing countries have not managed to escape the traditional challenges, to mention but a few.

New and re-emerging infectious diseases

Some infectious diseases such as malaria, once thought to be on the verge of elimination as a public health problem, remain leading causes of death worldwide. The incidence of some has increased within the past two decades and others pose a growing threat. A number are caused by hitherto unknown agents, such as Hantavirus pulmonary syndrome.

Notable among the new and re-emerging diseases are infection by *Escherichia coli* 015:H7, which has provoked foodborne outbreaks of severe bloody diarrhoea and kidney failure in

several countries, multidrug resistant pneumococcal pneumonia, which particularly affects children cholera caused both by classical strains and by new biotypes as recently illustrated among Rwandan refugees and the HIV/AIDS.

Many factors, or combinations of factors, can contribute to disease emergence. New infectious diseases, may result from the evolution of existing organisms known diseases may spread to new geographical areas or new populations or previously unrecognised ones may appear in persons living or working in areas undergoing ecological changes such as deforestation or reforestation, which make them more exposed to insect, animal or environmental sources of infection. Re-emergence of infectious diseases may result from the development of antimicrobial resistance in existing agents (e.g. gonorrhoea, malaria, pneumococcal disease) or a breakdown in public health measures against previously controlled infections (e.g. cholera, tuberculosis, pertussis).

Other causes include changes in lifestyles particularly in overcrowded cities where population growth has outpaced supplies of clean water and adequate housing, the dramatic growth of international travel, which allows a person to be infected in one country and become ill in another distant corner of the world, and changes in food handling and processing which mean that food stuffs may have originated thousands of miles away or have been prepared from many different animals.

Poverty

Poverty denies developing countries the capacity to enable their people to emerge from the misery of poor social facilities and raise their standards of living. Education, for example, plays a key role in making people receptive to modifying their lifestyles in ways that are conducive to better health. A universal supply of clean and safe water is another major concern. Waterborne diseases represent a significant percentage of persisting health hazards in developing countries, a direct outcome of stringent economic conditions.

Another important factor hindering community participation in effective health care is countries' low household budgets, which greatly impede policies of cost sharing in health services, especially in rural areas. At the same time, poverty and a lack of adequate facilities in the countryside leads to rural-urban migration, which, together with the rapid growth in population, creates unsuitable human habitats where it is obvious, therefore, that in order to ensure the provision of proper health care, the question of poverty alleviation must be given serious attention.

Drugs, wars, and disasters

Drug abuse poses yet another health hazard. I hope this Conference will address this issue as a serious growing treat, particularly to the health and lives of the youth. Wars are a great cause of poverty, environmental degradation, and declining health standards. It is sad to note, that as we enter the next millennium, Africa has distinguished itself by its internal conflicts, which have lead to physical disturbances and the displacement of populations. Renowned for its peace and tranquillity, Tanzania still suffers the spillover effects of these conflicts, especially with the flood of refugees exerting substantial pressure on the environment and management of health, education, and welfare services.

Mr. Chairman, in addressing these issues several steps have been taken both at policy and implementation levels. Most countries today are attempting to adopt health policies and structures that provide better care, use resources more efficiently and encourage appropriate health-seeking and health-promoting behaviors. The poorer countries, increasingly recognize that health and socio-economic development cannot be pursued independently, and that limited resources have often been spent mainly on large urban hospitals as a result of poor investment decisions taken in a context of underdeveloped planning, budgeting and financial information. However, systems that are well organized and geared to making health care accessible to all, nevertheless required considerable resources. User charges, community financing and health insurance have all been envisaged as funding mechanisms.

Most countries share two important concerns. The first is to redefine the roles of the key actors governments, care providers, consumers and health financing agencies. The second, common to many low-and middle-income countries, is to find new financing mechanisms that will generate additional resources and bring greater efficiency and equity in health. The financing and provision of care are increasingly seen as a partnership between government and other actors.

In countries changing from a centralized-controlled to a liberal economy, health care has deteriorated and health policies are in a state of flux, as financing shifts from integrated public models to more pluralistic systems. Reform in such circumstance focuses on improving the quality and effectiveness of services, and lays more stress on the private sector.

Governments are seeking to reduce bureaucracies, and the roles of Ministries of Health are shifting from direct delivery of care towards monitoring and regulation. Unfortunately, many ministries lack the structural and managerial capacity as well as the political strength to implement the necessary reorientation. Many are in fact starting to decentralize services to the district level, hoping this will lead to improved management, efficiency, accountability and responsiveness. The private sector is being given a greater role through such mechanisms as selling or otherwise disposing of public assets and making lump-sum subsidies, seconded personnel, tax-free equipment and bonus incentives available to nonprofit health care providers. Within this framework, the public system is encouraged to compete for patients through policies, which combine payment on a contract basis with free choice of provider, by the patient. Thus, government resources are tied to the consumer not to the facility. User fees are structured in such a way as to encourage patients to make effective use of health services.

Mr. Chairman, I have gone through the conference programme and abstracts book. It is gratifying to note that most presentations will address these issues. Most of us here are aware that the process of reforms is still in infancy stage. We cannot afford to delude ourselves that the reforms will proceed on smoothly. In the way we are bound to come across hurdles some

sections of the population especially the poor and the vulnerable are likely to find it difficult to come to terms with the process. This is yet another challenge for you as researchers to identify the problems, their origins and suggest alternative solutions. We all know that the researcher is geared towards the generation of new knowledge using the scientific methods to identify and deal with health problems. There is a popular saying "Knowledge is power" Hence.

Research is essential for advancing health and development because, it informs and guides action, tools for health promotion are developed through research, it provides basis for effective planning and wise use of scarce resources and it also informs the attitudes with which people think about themselves and their world. In short it fosters a scientific, problem solving culture.

At this juncture, Mr. Chairman may I take this opportunity to commend the National Institute for Medical Research (NIMR) for its efforts to carry out, Control, Coordinate, register, monitor, evaluate and promote health research in Tanzania as mandated by the Act of Parliament No. 23 of 1979. In October this Year NIMR will be celebrating its 20th anniversary since it became operational in 1980. Although 20 years is a short time in the life of an institution, and especially so, a health research institution and despite the persisting very unfavorable economic situation during which NIMR was conceived and developed, there have been notable achievements. The Institute has implemented a commendable manpower recruitment and training program there are now around 60 qualified researchers on various fields. NIMR has also opted to concentrate on Tanzania's major communicable diseases, which are our leading causes of suffering and death, testing or developing tools for more appropriate diagnosis, prevention and control of these major diseases and health systems research. Results from some of these studies are already contributing to the improvement of health care in Tanzania and beyond. These are but a few achievements. However, research coordinating and consensus building has been a problem and a major stumbling block in health research. NIMR has often accused of monopolizing the process of building national consensus in health research and there has been a tug of war between various institutional when it come to determining who does what type of research.

Mr. Chairman, all this may give you a false impression that nothing has been done towards solving this problem. Let me make clear this impression by telling you that since 1991, the time when the idea of Essential National Health Research (ENHR) was introduced in Tanzania, major efforts have been made to improve the profile of the Institute and to develop a mechanism known as the Tanzania National Health Research Forum that was inaugurated on February 1999 in Arusha by the Minister for Health. This year the Forum will celebrate its first anniversary and will hold its First Annual Meeting, and activity, which will run concurrently with the conference. Care in Tanzania and beyond. These are but a few achievements. However, research coordination and consensus building has been a problem and a major stumbling block in health research. NIMR has often been accused of monopolizing the process of building national consensus in health research and there has been a tug of war between various institutions when it came to determining who does what type of research. The Tanzania National Health Research Forum is a mechanism composed of partner institutions in health research and their representatives. It is an inclusive body which ensures that each partner has a clearly defined role, is considered an asset and share in the ownership for the mechanism. Its functions are based on the Essential National Health Research (ENHR) Strategy, which ensures that evidence-based information is utilized correctly in the policy and decision making process, enhancing the provision of better and equitable health to the population.

The Forum is a consultative and advisory body to policy and decision-makers as regards health research coordination, undertaking, collaboration, and dissemination of health research results and enhancing utilization of research results for policy and decision-making. It is a non-political, non-religious voluntary body dealing only with issues of health research and development in the country. It is my hope that conference participants will take initiative to learn more about the Forum during the conference. Mr Chairman, I have talked at length about NIMR and the National Health Research Forum. My main intention here is to emphasize my point about the importance of research and to challenge you as researchers that your satisfaction must not only come from new discoveries and the search for new knowledge but from the assurance that such knowledge gets used in solving the underlying health problems and results in better and equitable health to our populations. My Ministry's committed to collaborate with you in all your endeavours and we are anxiously waiting for

the deliberations that will result from the proceedings of this conference. I wish you God speed as I declare open the Eighteenth Annual Joint Scientific Conference of the NIMR and the Symposium on Drug Donation and their Impact on Health and Health Systems in Africa.

Thank You!

**SESSION 1: HEALTH SECTOR REFORMS: CHALLENGES FOR HEALTH
RESEARCH IN AFRICA IN THE 21ST CENTURY INEQUALITY, INEFFICIENCY
AND POVERTY**

WOMENS POVERTY AND EFFECT TO THEIR HEALTH: A CHALLENGE TO HEALTH SECTOR REFORM

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In many societies, the roles women assume accord them fewer opportunities and privileges. They have less power to go to school, inherit land, family decision-making and political policies. Further more, they make up the majority of unpaid family workers (Riley N.E. 1997) and grow up to 90% of all food for home consumption. This difference reflects the low status of women in using work to increase their access to society resources resulting to poverty and ill health. Because of this a study was carried out in Longuo village Moshi Kilimanjaro from September to December 1999 to find out factors contributing to women's poverty and effects to their health. The methodology used was a random sample of 100 women 16-40 years of age. A structured questionnaire was used to interview followed by focus group discussions. All 100 women were interviewed. Their mean age was 35 years. With average of 5 children 50% were married, 60% had no power to command family resources including inheritance. The study reveals the low status of women and poverty resulting to poor health. Future strategies to include the health sector reform to re-visit the unresolved agenda of providing primary health care to the poor and vulnerable groups such as women are considered.

PROMOTING EQUITY FOR TREATED NETS MOSQUITO: EXPERIENCE FROM A DISCOUNT VOUCHER SCHEME KILOMBERO AND ULANGA DISTRICTS

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Ifakara Health Research and Development Centre and Swiss Tropical Institute

Malaria is the leading health problem in Kilombero and Ulanga Districts, as in most of Tanzania. A discount voucher scheme is available through MCH clinics in these two districts. The scheme reduces the price of treated nets by Tshs 500 for pregnant women and mothers of under five. Young children and women in pregnancy are at greatest risk of the severe effects

of malaria, and the voucher scheme increases equity through an effective targeted subsidy to these high-risk groups. The scheme enhances the role of community in the provision of preventive services through public and private mix approach encouraged by HSR: vouchers are given to women through MCH clinics and exchanged against treated nets bought at private shops in the villages. More than 40,000 treated nets have been sold through social marketing activities in the area since 1997, and over 20% of overall sales have made use of the scheme.

Objectives: To evaluate the performance of the discount voucher scheme. Focus group discussions (FGDs) and informal interviews were carried out with various groups including MCH clinic attendees (pregnant women and mothers of under fives). Other sessions were held with mothers and fathers of under fives at different hamlets in the selected villages, MCH staff and village leaders. Questions were asked about knowledge of vouchers, importance, availability, eligibility, use and misuse of vouchers by mothers and MCH staff, and on how the scheme could be improved. Preliminary results will be presented from a qualitative evaluation of the scheme.

SOCIAL MARKETING FOR HEALTH PROMOTION IN HEALTH SECTOR REFORMS

Mponda H

Ifakara Health Research and Development Centre

Among other things, HSR advocates the decentralization of decision making on health policies to the district level. Social marketing can be a useful tool in promotion and implementation of those policies. This paper explores how social marketing can be applied in the Health Sector Reform in Tanzania as experienced from KINET, a social marketing project for distribution and promotion of ITNs for malaria control in Kilombero and Ulanga Districts. Tanzania and other developing nations are faced with a number of social and health problems such as inadequate disease control measures, etc. On the other end, all of them have very limited resources with which to combat such existing problems. Social marketing is the application of marketing techniques and concepts to change behavior towards solving social problems. In other words the commercial marketing experiences and methods are applied to a

product/service, which has a social benefit, with main motivation being social improvement rather than financial gain to the marketer. Much attention is paid to the target groups — the beneficiaries, sometimes also called customers and much efforts goes into understanding their background perception, knowledge, attitude, behavior and practice of the targeted groups. Preliminary results suggest that, social marketing is found to be a successful approach in Kilombero and Ulanga districts to promote and distribute ITNs for health improvement. It has allowed large coverage rate of 69% in rural population in the initial distribution area. It confirms previous positive experiences in control of STDs, family planning and others. The implication of this will be discussed.

COMMUNITY'S WILLINGNESS TO PAY FOR INTERVENTIONS TO CONTROL HELMINTHS INFECTIONS IN SCHOOL CHILDREN IN TANZANIA

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Introduction: Cost sharing for health care has been initiated in Tanzania in curative health services. This scheme could be extended to disease prevention and control services. This study explores the community's willingness to pay for interventions to control schistosomiasis and soil transmitted worms in school children in Sengerema District, Tanzania.

Objectives: The main objectives of the study were to determine: (1) the community's willingness to pay (WTP) for a school based chemotherapy programme against schistosomiasis and soil transmitted worms, and (2) socio-economic and cultural factors influencing the community's WTP.

Methods: A Contingent Valuation technique was used to elicit the community's WTP. This comprised of a questionnaire, which also sought to determine the socio-economic and cultural status of the households in the community. A total of 500 household heads that had children attending school were interviewed.

Results: The WTP of the households was heterogeneous, ranging from Tsh. 0 to 20,000 (US\$ 0 to 25) with a median of Tsh. 1,000 (US \$ 1.25) (Exchange rate Tsh. 800 to US\$ 1).

Socio-economic and cultural factors were found to influence the WTP of the community. Discussion: The community's WTP elicited in Sengerema of Tsh. 1,000 (US\$1.25) more than covers the cost of a school-based chemotherapy programme against schistosomiasis and soil transmitted worms as estimated by the Partnership for Child Development (US\$ 1 .02 per child per year). It is, therefore, feasible to develop a schistosomiasis and soil transmitted worms control programme on cost sharing basis between the community and the government.

SESSION 2: THE EMERGENCE AND RE-EMERGENCE OF COMMUNICABLE DISEASES: CHALLENGES FOR BETTER INTERVENTIONS

**BANCROFTIAN FILARIASIS: THE INTERRELATIONSHIP BETWEEN
TRANSMISSION, INFECTION, HOST RESPONSE AND CLINICAL
MANIFESTATIONS IN ENDEMIC COMMUNITIES BEFORE AND AFTER
INTERVENTION. 1. REPORTS FROM AN ON-GOING EU FILARIASIS PROJECT**

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Bacrotian filariasis is a major cause of morbidity and a considerable socio-economic burden on afflicted communities in many parts of the tropics, including East Africa. Despite the magnitude of suffering resulting from *Wuchereria bancrofti* infection, many aspects of the transmission dynamics and of the interrelationship between infection, host response and development of disease are poorly understood. These are issues of fundamental importance for planning and implementation of effective control program. This paper presents the objectives and methodology of an EU funded Filariasis Project, carried out as a collaboration between research institutions in Tanzania, Kenya, Denmark and the U.K., with the aim to investigate these issues. The study basically comprises of series of cross-sectional parasitological, clinical and immunological investigations accompanied by intensive longitudinal entomological surveillance in two communities with high and low levels of endemicity located in Tanzania and Kenya, respectively. Semiannual rounds of mass treatment were introduced after the first year of baseline data collection, while investigations continued. Preliminary parasitological and clinical findings from the first study year will be presented. At start of the study, the Tanzania community had a microfilarial prevalence of 25%. 25% of adult males (≥ 20 years) had hydrocoele, and 4% of the adult population (≥ 20 years) had lymphoedema/elephantiasis. The Kenyan community had a microfilarial prevalence of 4%. 5% of adult males (> 20 years) had hydrocoele, and 1% of the adult population (< 20 years) had lymphoedema/elephantiasis. In a subsequent presentation (RT Rwegoshora et al) we will report on the preliminary entomological findings.

WITHIN - VILLAGE TRANSMISSION PATTERNS OF BANCROFTIAN FILARIASIS IN TWO COMMUNITIES WITH DIFFERENT LEVELS OF ENDEMICITY. II. REPORT FROM AN ON-GOING EU FILARIASIS PROJECT

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Marked heterogeneity is generally observed in the patterns of distribution of infection and disease in bancroftian filariasis, both between and within endemic communities. The role of transmission in determining these patterns, at community, household and individual levels, is investigated as part of an EU funded Filariasis Project carried out as a collaboration between research institutions in Tanzania, Kenya, Denmark and U.K. This paper reports on entomological parts of this project, during which detailed investigations on abundance and distribution of vectors, and on their transmission of *Wuchereria bancrofti*, are, carried out in two communities with high and low levels of endemicity. The two communities are located in Pangani District, Tanzania and Kwale District, Kenya, respectively. Once weekly adult mosquitoes are sampled using CDC light traps from 50 selected households in each community. The mosquitoes are subsequently identified and dissected for parity and filarial larvae. Species composition, mosquito biting densities and infection rates at household level in the two study communities are compared and related to the type and quality of the houses and distance to breeding sites. Furthermore, the relationship between transmission, infection and disease are analyzed at community, household and individual level. The specific objectives of this part of the study, and preliminary findings from the first study year are presented.

**PRO-INFLAMMATORY CYTOKINES RESPONSES ASSOCIATED WITH
LYMPHATIC FILARIAL HYDROCOELE PATHOLOGY AND ADVERSE
REACTION TO CHEMOTHERAPY**

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Clinical-parasitological survey for bancroftian filariasis in Tanga, Northeast Tanzania was carried out. 57 males aged 15 years and above were identified for further studies of IL6, TNF-alpha, IL1, IL8 and Gama-interteron in plasma levels pre- and post-treatment with diethylcarbamazine (DEC). Adverse reactions were observed in all individuals treated with the drug. High levels of IL6 did not correlate with occurrence and severity of clinical hydrocoele contains high levels of Gama-interteron suggesting inflammatory responses may be T cell mediated. These results suggest that blood elevated cytokine profile is not the only aetiological factor in the inflammatory cytokine reactions developing after diethylcarbamazine treatment of bancroftian filariasis. During treatment, analysis of plasma pro-inflammatory cytokine responses, it was observed that proportion of asymptomatic patients did show pro-inflammatory responses. However, this did not correlate with the development of adverse reactions. Increased levels of IL6, IL8 and TNF alpha were observed in-patients with chronic pathology prior to treatment in contrast to patients without pathology. In conclusion, these findings conflicts with the hypothesis that pro inflammatory cytokines are directly responsible for adverse reactions to diethylcarbamazine chemotherapy.

**RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED STUDY OF
DIETHYLCARBAMAZINE FOR THE TREATMENT OF HYDROCELE IN AN
AREA OF TANZANIA ENDEMIC FOR LYMPHATIC FILARIASIS**

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University of Copenhagen, Denmark, Amani Medical Research Centre, National Institute for
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Some community studies have suggested that Diethylcarbamazine (DEC) may have a beneficial effect on prevalence and individual size of hydrocoele. To investigate the effect of DEC on hydrocoele of filarial origin, a double blind, placebo-controlled trial was carried out in an endemic area in North-eastern Tanzania. 100 adult male volunteers with chronic hydrocoele were enrolled in the study and randomized to DEC 300 mg per day in 3 divided doses for 12 days, or placebo. Circumference and ultrasonography measurements of the scrotum and a serum sample for filarial antigen was obtained at entry and after 3, 6 and 12 months. Scrotal size index and hydrocoele fluid volume index was calculated. After 3 and 6 months but not after 12 months there was a statistically significant reduction of mean scrotal size index in the DEC group, and after 3, 6 and 12 months in the placebo group. Mean hydrocoele fluid volume index remained constant in the DEC group, but showed a statistically significant increase in the placebo group after 12 months. There was no statistically significant difference between DEC and placebo for any volumetric measurement at any of the follow-ups, overall or stratified by antigen status or hydrocoele grade. At 12 months geometric mean intensities (GMI) of circulating *W. bancrofti* antigen (CFA) was significantly lower in antigen positive individuals receiving DEC than in antigen positive individuals receiving placebo ($p=0.008$). DEC does not seem to be effective for individual treatment of hydrocoele of filarial origin, regardless of the infection status of the patient. It is recommended that easy and cheap interventions for hydrocoele should be obtained to be employed in connection with the WHO lymphatic filariasis elimination programme.

MALARIA EPIDEMICS IN TANZANIA

Mboera LEG and Kitua AY

National Institute for Medical Research

Malaria epidemics have been reported in various districts of Tanzania. Epidemics have occurred in previously malaria-free areas, or areas with low malaria endemicity where the local conditions allow for the importation of the disease. Marked malaria epidemics in Tanzania have occurred in Muheza, Babati-Hanang, Dodoma, Lushoto, Ngorongoro and Muleba Districts. Most of the affected districts are either highland areas or semi-arid. Both areas have been experiencing previously a low level of malaria endemicity. Malaria epidemic is likely in a particular time and place when the populations with low immunity are subject to an infection as a result of either environmental change, changed patterns of human activities, immigration, drug resistance or a combination of these factors. Despite the fact that factor associated with the occurrence of Malaria epidemics in areas of Tanzania are not well documented, climatological changes due to global warming, changes in mosquito host-preference increased human socio-economic activities, and the wide self-medication practices and drug resistance are likely to play a major role in malaria epidemics in Tanzania.

**DIVERSITY AND TURNOVER RATES OF *PLASMODIUM FALCIPARUM*
SUBPOPULATIONS INFECTING CHILDREN LIVING IN A HOLOENDEMIC
AREA, NORTHEASTERN TANZANIA**

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Genetic and antigenic diversity is a characteristic of *Plasmodium falciparum* and natural infections in holoendemic areas can consist of several genetically distinct parasite subpopulations. The diversity and daily turnover of the parasite subpopulations and the role of this in progression from asymptomatic to symptomatic conditions were investigated. A cohort of 34 initially asymptomatic parasitaemic children aged 1-5 years was followed daily for 31 days. Clinical and parasitological examination for presence of signs and symptoms of clinical malaria was made on each day during the follow-up period, 19 children developed symptoms suggestive of clinical malaria. Parasite densities were estimated daily by microscopy. Blood parasite samples from 13 children who developed clinical malaria symptoms and 6 who remained asymptomatic throughout the study period were genotyped by polymerase chain reaction (PCR) and 2 (MSP 1 and MSP2) as well as glutamate rich protein (GLURP) genes. Nested PCR amplified family specific sequences of MSP 1 or MSP2 and the Rh repeat region of GLURP. Infections were found to be highly complex in both groups of children. Every isolate examined from both groups had a mixture of parasite clones. Daily changes were observed in both parasite density and genotypic pattern. The mean number of genotypes per individual was estimated at 6.6 and 4.3 clones for asymptomatic and symptomatic groups of children, respectively. Analysis of allele frequency distributions showed that these differed significantly for MSP 1 locus only, involving alleles belonging to the Mad2O and Klf families. Clinical manifestations were found to be significantly associated with the presence of Mad2O and IC 1 alleles.

THERAPEUTIC EFFICACY OF AMODIAQUINE IN CHILDREN WITH UNCOMPLICATED FALCIPARUM MALARIA IN MUHEZA DISTRICT, TANZANIA

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Background: *In vivo* sensitivity of *Plasmodium falciparum* to amodiaquine (AQ) was assessed at Maramba and Mjesani in Muheza District. We undertook this study early in 1999 to obtain baseline information on efficacy and safety of AQ. This information was required for a planned study to evaluate the effect of AQ periodic treatment on malaria-associated morbidity and severe anaemia in infants. This study is important given the high rate of chloroquine and sulphadoxine/pyrimethamine resistance around Muheza.

Methodology: Children aged 6-59 months were involved in the assessment. 104 children with uncomplicated falciparum malaria, were treated with AQ (25mg/kg given over 3days). A modified 14-day WHO protocol for the evaluation of antimalarial treatment, at health facility level, was adopted with slight modification. **Results:** Successful follow-up was made in 100 of the treated children. Early treatment failure (ETF) was observed in 1(1%) case, the other 99 cases revealed adequate clinical response. Only FRI level of resistance was observed in 9 (9%) of the cases. On the other hand, the packed cell volume (PCV) improved significantly from 29.1% (95% CI, 28.2-30.0) seen at day 0 to 32.8% (95% CI 23.0-33.3) seen at day 14 ($P=0.0004$). The mean value of leukocytes increased from 7.6×10^9 - $4.6-12.1 \times 10^9$ on Day 0 to 7.8×10^9 (4.6- 10) on day 14. In contrast, mean neutrophil counts were decreased from 45%(19-74%) on D and O to 31.5%(18-55%) on D and 14. However, these values are within the normal range.

Conclusion: Results obtained here indicate that AQ is highly efficacious in this area and hematological recovery is satisfactory. The drug was also found to be tolerable without serious haematological adverse effects. AQ has now been employed in a study on intermittent malaria treatment in infants.

THE EFFICACY OF SULFADOXINE/PYREMETHAMINE IN CHILDREN WITH UNCOMPLICATED FALCIPARUM MALARIA IN MUHEZA DISTRICT, NORTH EASTERN TANZANIA

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Objectives: The study aims were to monitor, once annually, the therapeutic efficacy and assess haematological response in children treated with sulfadoxine/pyrimethamine (SP).

Study area and population: The studies were conducted at Magoda and Mpapayu villages in Muheza district, northeastern Tanzania. The studies were carried out in the month of July in 1997, 1998 and 1999. Children aged 6-59 months with uncomplicated falciparum malaria were involved in the studies.

Methodology: All children of the required age were screened for malarial parasites and fever. Both axillary temperature and a history of fever were recorded. Anaemia was estimated using the packed cell volume (PCV) method. Children with PCV values below 15%, those with mixed malaria infections severe and severely ill children were excluded. Children whose parents gave verbal consent were given a single dose of SP according to weight (1.25 mg/kg pyrimethamine and 25-mg/kg sulfadoxine). Clinical and parasitological follow-ups were made on days 1,3,7 and 14 and on any other day in case of fever. Clinical assessment was also made on days 1 and 2.

Results: Children with complete follow-up were 82, 68 and 45 in 1997, 1998 and 1999 respectively. In 1997, results obtained in the 1997 study showed parasites were still present in 96% of the cases by day 14 of follow-up. Similarly, the number of overall treatment failures, at Magoda and Mpapayu, were high (30.5) in 1997, most of the failures being from the former village. However, in the 1998 and 1999 studies, a consistent marked decrease in both

parasitological and treatment failures was seen at both villages. A more pronounced reduction in SP resistance was observed at Magoda.

Conclusion: In conclusion, results from the three studies indicate that SP resistance which was at its highest level in 1996 and 1997 is now on the decline. The reasons for the better response in the latter studies are not clear, but the introduction of drug failure surveillance for case management, into the mobile clinics in the villages, since May, and 1997 could be the main explanation. Other factors that support a better drug response in this community will be discussed.

EVALUATION OF THE SPF66 VACCINE FOR MALARIA CONTROL WHEN DELIVERED THROUGH THE EPI SCHEME IN TANZANIA

Acosta CJ, Galindo CM, Schellenberg D

The development of a vaccine is a priority if improved and sustained malaria control is to be achieved. The best use of a vaccine in Africa will be achieved if it can be delivered through the Expanded Programme of Immunization (EPI). We have conducted a trial designed to evaluate the efficacy of SPf66 vaccine for malaria control when delivered through the EPI scheme in Tanzania.

Methods: The study was a two-arm double blind, individually randomized placebo controlled trial involving 1,207 infants. The primary objective of the trial was to estimate the efficacy of three doses of SPf66 given at 1, 2 and 7 months of age in preventing clinical episodes of malaria. These were documented through a health facility based passive case detection system.

Findings: Overall compliance for the third dose of SPf66/placebo was 91%. SPf66 was safe, immunogenic and did not interfere with humoral immune responses to EPI vaccine. There were 294 episodes among SPf66 recipients and 288 among placebo recipients yielding a vaccine efficacy estimate of 2% (95% CI-16, 16; p=0.84).

Interpretation: This first trial of a malaria vaccine among very young infants subject to intense *P. falciparum* malaria provides information on the safety of peptide vaccines administered to young infants as well as of their capacity to induce immune responses negatively interacting with EPI vaccines. The demonstrated lack of efficacy suggests it may be more difficult to stimulate protective immune responses against malaria during the stages of life. These results mark the end of field-testing of the first vaccine to have shown protection

under natural exposure, and show that SPf66 in its current formulation does not have a role in malaria control in sub-Saharan Africa.

DRUG RESISTANCE IN *PLASMODIUM FALCIPARUM*

Mwaiko GL

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To develop new drugs for treatment of tropical target diseases, one of the focuses is on antimalarials and the phenomenon of drug resistance in *Plasmodium falciparum*. Development approach is discussed with emphasis on the need to review the mode of action of existing antimalarials in order to derive new strategies, focusing on cellular inhibitory functions of the new compounds to be developed, on growth and development of the parasite.

EVALUATION OF MALARIA SITUATION IN BABATI AND HANANG DISTRICT NORTHERN TANZANIA

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Introduction: In April 1999, the Ministry of Health (MoH) received an alarming report of malaria epidemics in Babati and Hanang Districts, Arusha Region. As a matter of urgency, the National Institute for Medical Research (NIMR) directed its Amani Medical Research Centre (AMRC) to carry out a rapid assessment of the situation. The objectives of the evaluation were to carry out an assessment of the malaria situation and evaluate the magnitude of the problem to enable the MoH to institute appropriate control measures. Review of Health facility data from Babati and Hanang districts. Data were collected to provide information on malaria morbidity and mortality. Data on rainfall and temperature were collected from respective metereological department. The setting was Babati district hospital, in Babati district and Katesh health centre in Hanang district. Subjects included cases from all cases that attended Babati hospital and Katesh health centre for the period

between 1997 and 1999. The results showed during the period between January and April 1999, about 1230 cases were admitted at Babati hospital. This was about a half of what was observed in the whole of 1998 (2448). In Babati districts the individuals most admitted for malaria are children under five years of age, while in Hanang district, both children and adults are almost equally affected. There were about twice as many malaria deaths in Hanang district as in Babati during the 1998 and 1999 rainy seasons. Between January and April 1999 there was a higher malaria case-fatality rate compared to the same period in 1998 in both districts. Our investigation confirmed that the outcry of people from both Babati and Hanang districts was justified because it seem there was an increase in the number of cases and deaths in the first months of 1999. The importance of reviewing hospital data during epidemic investigations cannot be overemphasized combining such data with those of rainfall and other factors can assist in making meaningful conclusions.

RAINFALL, CYCLONE AND MALARIA OUTBREAK IN EASTERN USAMBARA MOUNTAINS NORTH EASTERN TANZANIA

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The objectives of the study were to investigate reports of malaria deaths and associated factors in a highland area of Tanzania traditionally through to be of low transmission. The design was case series study: Follow- up of all deaths that occurred between March and May 1999. Verbal autopsy was administered to parents or caretakers of deceased. Data were also collected from other individuals by using a semi-structured questionnaire to provide information on the knowledge and behavior towards malaria. The setting was IBC-Msasa village in Muheza district, northeastern, Tanzania. Other data sources include Amani staff included all child deaths that occurred in the village between 'March and May and adult individuals who were permanent residents in the village. Ten deaths of children aged between 3 and 60 months (median age 10 months) were reported for the period between March and May. Eight deaths were followed-up and subjected to verbal autopsy. Of the followed-up deaths 6 were infants, and 2 aged above 1 year. After examination of verbal autopsy and clinic records, all deaths were attributed to malaria. Eighty-eight randomly selected individuals, including the parents or caretakers of deceased children were interviewed. Of

them more than 95% were aware of malaria symptoms and treatment. However, all parents or caretakers of the deceased blamed the cyclone for these deaths. This was mentioned either directly or after being prompted. Thus our results indicate some sort of malaria epidemic that was worsened by the low level of people's knowledge on malaria and their traditional beliefs on the cyclone. Although people were well informed of the signs of malaria, they played a delay on appropriate treatment and gave priority to traditional healing. As a result most of these children were sent to health facilities after developing complications. This, however, suggests the need for further investigations and establishment of an epidemiological surveillance of malaria. We also recommend a continuous health education intervention on this and other similar communities. Such approach would provide important information on dealing with such abnormal events.

EMERGENCE AND RE- EMERGENCE OF PLAGUE IN AFRICA: NEED FOR APPROPRIATE INTERVENTIONS IN THE 21ST CENTURY

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Human plague has been an important emerging and re-emerging bacterial zoonosis in many African countries during the 20th century. Most of the affected countries are in Eastern Central and Southern Africa including Tanzania, Uganda, Democratic Republic of Congo (DRC), Madagascar, Mozambique and Malawi. Many outbreaks of the disease occurred in the countries during the century and involve thousands of recorded and unrecorded cases and deaths. Some foci in these countries are active to-date and outbreaks of the disease are likely to occur in such areas during the 21st century unless appropriate, feasible and sustainable interventions are undertaken. Previous and current control and preventive measures against plague involve chemical control of rodents and fleas, chemotherapy and chemoprophylaxis for patients, and close contacts respectively, enforcement of environmental sanitation, health education for communities in affected areas, isolation of patients, and imposing quarantines when and where possible. Continued occurrences of several outbreaks in many African countries suggest that the measures are only temporarily or partly effective and are not sustainable.

Several observations have revealed that human associated factors play important roles in plague persistence, severity of outbreaks in active foci, re-emergence in old foci and emergence in new foci. Appropriate community-based and socio-culturally feasible interventions are recommended for adoption and application by the affected African Countries in the 21st century.

THE EFFECT OF PLANT SPACING AND INTERMITTENT IRRIGATION UN ANOPHELES MOSQUITO PRODUCTIVITY IN DIFFERENT VARIETIES OF RICE

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Experimental rice plots were used to compare mosquito productivity of four varieties of rice using a randomized split block design. *Afaa mwanza*, and *Subarmati* were improved traditional types, which generally grew taller and produced fewer tillers than the high yielding varieties, 1R54 and RD23. Effects of permanent versus intermittent irrigation and plant spacing on mosquito productivity were also assessed in these plots. Results of drop-net collections showed large variation in the numbers of adult *Anopheles gambia sl.* produced weekly. There was an inverse relationship between rice height and the number of produced from week one through week 11. The highest peak was produced in week 1. There was no significant difference between varieties, but 20 cm x 25 cm spacing between rice plants was significantly more productive than 20 cm x 20 cm. *Anopheles pharoensis* showed a positive association with rice height, and produced a peak towards the end of the sampling period. Intermittent irrigation did not result in a reduction in mosquito productivity compared with permanent flooding, since small pools created by water drying out continued to provide mosquito-breeding sites. The findings are discussed in the context of rice irrigation and malaria transmission.

MALARIA SPOROZOITE RATES IN *ANOPHELES GAMBIAE S.L* AND *AN. FUNESTUS* IN NORTHEAST SINCE 1934 - 1999

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Sporozoite rate of the *Anopheles* mosquito has been used as a measure of mosquito infectivity. The examination of the pattern of malaria sporozoite infectivity rate of *Anopheles gambiae s.l* and *An. funestus* in an area of malaria holoendemic in northeast Tanzania has revealed an interesting trend during the past sixty-five years. The sporozoite rates found in *An. gambiae* and *An. funestus* in this area of Tanzania, by various investigators, have shown a marked significant decline during the past 65 years. This may be attributed to various factors, including the wide spread use of antimalarials and vector control measures. The antimalarials tend to reduce the infectivity of patients for mosquitoes and probably account for the declining sporozoite rate. Vector control on the other hand tends to reduce the longevity of the mosquitoes and their likelihood of acquiring an infection.

**DRUG RESISTANT TUBERCULOSIS: A POTENTIAL THREAT TO
TUBERCULOSIS CONTROL PROGRAMME -WHICH WAY TANZANIA**

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Objective: To determine the pattern of drug resistant tuberculosis in different parts of the world and give some recommendations on ways to control it. This paper is a review of WHO reports and other literature on anti-TB drug resistance and compilation of researches done in different parts of the world.

Observation: The prevalence of resistance to any drug ranged from 2% (Czech Republic) to 410/o (Dominican Republic), with a median value of 10.4%. Primary resistance to all 4 drugs tested was found in median value of 10.4%. Primary resistance to all 4 drugs tested was found in median of 0.2% of the cases (range 0 to 4.6%). Primary MDR-TB was found in every country surveyed except Kenya, with a median prevalence of 1.4%, range 0 (Kenya) to 14.4% (Latvia).

Discussion There is a big variation prevalence of anti-TB drug resistance between different continents and countries, but one thing that should be noted is that every country is vulnerable to the consequence of poor TB treatment practices in other countries. Drug resistance is therefore a potential threat to the standard international method of TB control i.e. DOTS strategy (“Directly Observed Treatment, Short course”).

Conclusion and recommendations: Government commitment in terms of financial resources and political will is highly needed. In addition there is also a need for good programme infrastructure, which includes high quality laboratory microscopy and consistent supply of medication, strong leadership, case management, systematic and continued evaluation of treatment outcomes.

THE IMPACT OF LARGE- SCALE CROP IRRIGATION ON MALARIA IN AFRICA^{*}

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The high population growth rate of the African continent is in danger of outstripping food production, and has led to a tremendous increased demand for food. In order to meet this need, many governments have sought ways of improving food production by initiating large-scale irrigation projects involving reclamation of arid and semi-arid areas for the cultivation of rice, wheat, sugarcane, cotton and vegetables. Although irrigation promises one solution to alleviating hunger and encourages economic growth, crop irrigation has often been blamed for aggravating disease in local communities. Malaria is one of the major tropical diseases associated with irrigation schemes, and changes in the transmission pattern of this disease following irrigation development have been a perennial subject of debate. It has often been assumed that high numbers of malaria vectors resulting from irrigation schemes lead inevitably to increased malaria in local communities. However, studies carried out in different parts of Africa to evaluate the impact of irrigation on malaria have produced a more complex picture. Increased numbers of vectors following irrigation can lead to increased malaria in areas of low intensity transmission, where people have little or no immunity to malaria parasites. On the other hand, introduction of crop irrigation in areas of high transmission has little impact on malaria transmission. Moreover, there is a growing body of

literature which shows that in many sites there is less malaria, in largely due the greater use of bed nets, better access to improved healthcare and small numbers of infective mosquitoes in communities adjacent to irrigation schemes. Thus, in most instances, the development of irrigation schemes in Africa does not increase the risk of malaria. However, developers should recognize the importance of providing effective health care facilities for these communities.

THE EMERGENCE AND RE-EMERGENCE OF COMMUNICABLE DISEASES: CHALLENGES FOR BETTER INTERVENTION

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Throughout human history, new diseases have emerged, old ones re-emerged and a few such as smallpox have disappeared. In the past two decades, however, there has been renewed interest over new and reemerging communicable diseases, sparked by the recently identified diseases like Lyme disease, acquired immunodeficiency syndrome and some of the African viral haemorrhagic fevers. Much attention has been focused on the appearance of hitherto unknown agents and the transmission of known agents to new populations. Often times it becomes established that most emergent pathogens have already existed in nature, some occurring in isolated human populations and others well established in animal species for centuries. Others have existed benignly in a wide range of hosts and only cause disease as opportunistic pathogens following due to changes in their genetic properties. Several factors have contributed to the emergence and re-emergence of communicable diseases including migration of human populations, interference with the ecosystem, changing socio-economic conditions, changes in the weather and climate, improved diagnostic skills and emergence of drug-resistant microbial strains due to uncontrolled use of chemotherapeutic agents. The extent to which these diseases have contributed to human morbidity and mortality has been enormous, and this has had a serious impact on the health care budgets of countries in resource-poor settings like Tanzania. In addition, these diseases pose political, social, cultural, managerial and scientific challenges to affected communities. In this paper, a review of the subject is done generally from a global perspective but more specifically to the current

situation in Tanzania. Challenges for prevention and control situations prevailing in most developing countries and bearing in mind that knowledge and simple technology for the prevention and control of these communicable diseases are available if only accessibility, affordability and acceptability could be assured.

**SESSION 3: THE ROLE OF TRADITIONAL MEDICINE IN AFRICA:
CHALLENGES TO HEALTH RESEARCHERS**

TRADITIONAL MEDICINE IN AFRICA: INVALUABLE SOURCE OF REVENUE AND ALTERNATIVE EFFECTIVE MEDICINES

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Introduction and Rationale: Africa bears the heaviest burden of communicable diseases among which are malaria, schistosomiasis, HIV/AIDS tuberculosis, diarrhoea and acute respiratory infections. The fight against the diseases requires the discovery and use of potent medicines and/or vaccines. The fast development of drug resistance by agents causing these diseases in the recent years is alarming. For example *Plasmodium falciparum* resistance to chloroquine spreading fast in Africa rendering chloroquine, once the safest, affordable, effective and accessible drug to the poor populations of Africa not effective. Yet alternative drugs with similar qualities of chloroquine are not available. The available ones are much more expensive and not as safe for use by the general population. If this trend continues Africa may find itself in a desperate and sad situation where equitable health services will be nothing but a fairy dream. Luckily, Africa owns a wealth of traditional medicines, which can provide the source of safe, affordable and effective drugs if systematic efforts are made to ensure well planned and executed expectation of this wealth and the development of a local drug industry. Scientific methods will be required to ascertain safety and efficacy of the products. This is the only way by which Africa can use its resources effectively to alleviate poverty and at the same time reduce the ever-increasing disease burden and death to its populations.

THE TANZANIA TRADITIONAL MEDICINE RESEARCH AND DEVELOPMENT NETWORK (TTMERD Net)

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Recognizing the abundant wealth of knowledge and material in terms of traditional medicines and their vulnerability to piracy, abuse and the potential extinction of some useful plants, Tanzania has created a Tanzania Medicine Research and Development Network. It has ten (10) objectives, which target at promoting the most accelerated development of traditional medicine based on safe and efficacious practices, preventing piracy and loss of national wealth, promoting of local industry while ensuring the protection of property rights. It is inclusive of all key stakeholders in traditional medicine ensuring that each partner is an asset, participates freely and functions within own right mandate. It offers the potential for collaboration with other communities and thus joining the development of region and global networks. Africa must approach this issue in a more organized and systematic way *in* order to protect its wealth and hence contribute to efforts for reversing the health *and* research sources inequity currently prevailing in the world.

BIOACTIVE PHYTOCHEMICALS FROM TANZANIA MEDICINAL PLANTS

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Tanzanian plants constitute a rich source of structurally most divergent bioactive natural products. Some of these plants are popularly used throughout the country as remedies for different type of ailments and their use has now gained ascendancy in urban population. The large number of vendors that are seen today selling these medicines in the markets and shop malls evidences this. The increasing number of people using them, evidences the efficacy of these remedies. This poses a challenge to scientists who should provide justification for the

use of these remedies, their safety and curative potential. This realization prompted us to investigate Tanzanian plants for antimalarial, trypanocidal, antimicrobial and antitumour activities. As part of these investigations, we have recently isolated and identified ten bioactive compounds from three *Annonaceae* species. Thus, photochemical investigations of the fruits of *Uvariadependens*, a rare plant species which is found only in Tanzania whereby it is used as a traditional remedy for malaria, yielded the antimalarial flavonoids 2-hydroxy-3,4,6-trimethoxychalcone (1), 6-hydroxy-2,3,4-trimethoxychalcone (2), 5,7,8-trimethoxyflavone (3) together with an antimalarial (-)-pipoxide (4). Chemical investigations of the fruits of *Hexalobus monopetalus* have yielded four antifungal hexalobines, 3,5-Hexalobine C (5), 3,5-Hexalobine D (6), (2'3'-Dhydroxy-3" Dihydroxy methylbutyl) – 5 (3 methylcrotonoyl) indole (7) and S- (2' 3' -Expoxy- methylbutyl)-3- (3'-hydroxy 3'methyl 1'acetyloxybutyl) – 2- y indole (8). *Sanrafaelia ruffonanunari* is the lone species of the genus *Sanrafaelia* that is only recently described. This is a rare plant species, which is not reported to occur elsewhere except at Kwamtiri village, Kwamngumi forest reserves in East Usambara Mountains in Tanzania. Photochemical investigations of the root bark yielded the antifungal styrylpyrone (+)-6-styryl-7,8-epoxy-4-methoxypyran-2-one (9) and (-)-6-styryl-7, 8-dihydroxy-4-methoxypyran –2- one (10). In this presentation, the results of our findings will be discussed.

THE ROLE OF TRADITIONAL MEDICINE IN AFRICA: CHALLENGES TO HEALTH RESEARCHERS

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No doubt over 80% of our people in Africa rely on traditional medicine for their primary health care needs. This is no surprise at all as it is the prevailing situation in most developing countries. Indeed traditional medicine is the oldest art of healing on this continent and represents the largest indigenous resource base for caring for the people of Africa since it is integrated in the socio-cultural and religious world views of our people. Until the advent of “modern medicine” all nations practiced traditional healing systems upon which they relied for their day-to-day health care. Most African traditional healing systems although undeveloped and un modernized continue to deliver health care services to the majority of the people because of the inability of “modern medicine” to provide effective health care

coverage to all our people. Hence there is urgent need to look back and change attitudes towards African traditional healing systems. There is a deliberate and urgent need to develop and modernize the same to effectively and safely meet the health care needs of the people of Africa. The predominance of the biomedical model of health care is at the center of our current failures to learn from and integrate with traditional medicine.

Nevertheless, traditional medicine has not remained static rather it has tended to selectively assimilate some aspects of modern medicine. In this regard, multidisciplinary research efforts are necessary and effective meaningful cooperation between traditional medicine and modern medicine is essential. The basic data obtained from such studies and cooperation will be vital in health, establishing a two-way communication and education aimed at enlightening the healers, midwives, allopathic health practitioners, scientists and the general public on traditional healing systems of Africa. At the start of the New Millennium, Africa needs the collaboration between the two health care systems as a matter of urgency and necessity. Africa today is characterized by extreme poverty, extremely large and unmanageable external debt, ever-growing population, conflicts, reduced public spending on health, education, agriculture, decaying research and development, privatization of knowledge and genetic resources, liberalization and globalization. The question then is how will we survive this Millennium while continuing to meet the health needs and aspirations of our people in Africa. This paper attempts to highlight some of the salient points, which could assist African traditional medicine to play a leading role in enhancing primary health care delivery and effectively provide health care coverage to all the people in the continent.



SESSION 4: TECHNOLOGICAL ADVANCES AND THEIR IMPACT ON HEALTH RESEARCH DIAGNOSTIC TECHNIQUES

CYTOKINE RESPONSE AND GENETIC REGULATION IN CHILDREN AND ADULTS WITH CEREBRAL MALARIA DISEASE

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Plasmodium falciparum is the most lethal form of human plasmodia. It induces various immunological responses that enable it to invade the immune system of the immunocompetent host and induce disease pathology. Death is usually due to cerebral complications arising from a number of phenomena. Several theories exist to explain the pathogenesis of cerebral malaria including the central role of cytokines in the modulation of the immune response in resolution and pathology to *Plasmodium falciparum*. In addition, various cytokines have been implicated in malaria-associated immunosuppression. Related to diseases susceptibility/resistance is also the involvement of the factors of HLA, which play a crucial role by contributing to recognition of self and non-self, to the immune responses, to antigenic stimuli and to coordination of cellular and humoral immune responses. In this study, by using ELISA and SSP-PCR, we have explored the pathogenesis of cerebral malaria with particular attention to the possible relationship between susceptibility or resistance to cerebral malaria and profile of cytokine production/secretion pattern in children, and in groups of adults with cerebral, severe and uncomplicated malaria. The possible association of some HLA factors in susceptibility to cerebral malaria was also analyzed. We investigated the possible interaction and associations among cytokines by determining their levels in cerebral malaria patients. We found significant elevation of IL-10, IFN- γ , symbols TNF- α and immunoglobulin E in cerebral malaria patients compared to their matched controls. TGF- β , an immunosuppression cytokine, was statistically significantly decreased in cerebral malaria patients compared to controls, severe and uncomplicated malaria. There was no significant association among cytokines suggesting that the immunomodulatory action of one cytokine is independent of another. There was no interaction among cytokines in the modulation of the disease. This also demonstrated no significant association between HLA-DQB1 gene products and susceptibility to cerebral malaria.

CONSUMPTION OF DARK GREEN LEAVES CAN NORMALIZE VITAMIN A STATUS IN CHILDREN

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Vitamin A deficiency (VAD) is a major public health problem in many developing countries. This stems primarily from low consumption of vitamin A-rich foods which are mainly from animal sources and therefore outside the purchasing power, on a sustained basis the of majority due to socio-economic constraints. A study was therefore carried out to determine if vitamin A status could be normalized by the consumption of mixed dark green leaves (DGV) as the sole source of vitamin A in a double-blind controlled study, 519 pre-school children (2-6y.) were randomly assigned to 5 groups and fed once/day, 7 days/week, for 3 months as follows: group 1-cereal/tuber+DGV stew (400RE)+dry fish+fat; group 2-cereal/tuber+DGV (400RE)+fish; group 3-cereal/tuber+home stew (Ca 10RE) + fishcontrol/negative control; group 4-cereal/tuber + -carotene (400RE) + fish + fat + fat-positive control: group 5-cereal/tuber + DGV (400RE) + fish + fat + mebendazole. Rational level, anthropometric measurements, hemoglobin (Hb), rapid turnover proteins (pre-albumin and retinol-binding protein), worm infestation (stool examinations) and level of acute and chronic infection (C-reactive protein and acid glycoprotein) were determined before and after feeding. Socio-cultural data, 24-hr dietary recalls as well as food frequency interviews (FFQ) were conducted. At the end of the feeding period, serum retinal level in-groups 1, 4, and 5 were significantly greater ($p<0.05$) than value in-groups 2 and 3 This meant that consumption of DGV (cassava/kapok leaves) in the presence of fat (shea butter-10%), enhanced the vitamin A status of the children. Consequently, the % of children with adequate retinal status increased from 28.2% to 48.2% after feeding. There were no significant differences in the anthropometric measurements, Hb, or levels of worm infestation before and after feeding. Sociocultural data did not reveal any practices that could significantly contribute to VAD in the study population. Analyses of 24-hr dietary recall and FFQ confirmed that VAD resulted from inadequate intake of vitamin A-rich foods. The significance of these findings in alleviating VAD in developing nations will be discussed. USAID/OMNI Research, Washington, DC, funded the study.

SCHISTOSOMA MANSONI INFECTION AND FAECAL OCCULT BLOOD IN SCHOOL CHILDREN OF NASSA MAGU DISTRICT, TANZANIA

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Introduction: Previous studies have associated blood-in-stool with *Schistosoma mansoni* infection, but there are a very few studies, which have evaluated the relevance of faecal occult blood as a sign of disease.

Objective: To establish the relationship between occult blood and *Schisomiasis mansoni* infection.

Materials and Methods: A latex agglutination test, Hemolex® was used to screen 1323 children for faecal occult blood and patent infection examined by Kato smears on two consecutive days.

Results: The prevalence of *S. mansoni*, infection was 84% and that of occult blood was 5.4. The positivity to occult blood increased with the intensity of *S. mansoni* egg count ($p<0.001$). The test had a very low sensitivity (SE) of 6%, but the specificity (SP) was fairly high at 96%.

Discussion: The results are discussed in view of relevance of faecal occult blood in schistosomiasis mansoni epidemiology.

**DIAGNOSIS OF HUMAN SCHISTOSOMIASIS BY SCHISTOSOME
CIRCULATING ANTIGENS AND PARASITOLOGICAL TECHNIQUE IN
MWANZA MUNICIPALITY, TANZANIA**

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This is a collaborative study in which NIMR Mwanza is charged with evaluation of schistosome circulating antigens in endemic area for *S. mansoni*.

Objectives: To compare the diagnostic performance of ELISA method and Kato method for detection of *S. mansoni*.

Methods: Two primary schools of Sangabuye and Nyafura in Mwanza Municipality known to be endemic for *Schistosoma mansoni* (n=207) were studied for human schistosome circulating antigens against the known Kato Katz technique as a gold standard. Stool and blood samples were collected from two primary schools. Stool samples were collected for three consecutive days and microscopically examined by Kato technique. Serum sample was collected for ELISA analysis.

Results: In the base line study the sensitivity of CAA-ELISA was 60% and specificity was 66%. One-month follow-up after treatment the sensitivity of CAA-ELISA was 50% and specificity 83%. The correlation between egg output and CAA concentration was $r=0.31$ in the baseline survey and $r=0.18$ in the follow-up survey.

Discussion: This study has shown CAA ELISA technique correlates with Kato technique in detecting *S. mansoni* although the correlation was not strong. The reasons for this weak correlation are discussed.

**ANALYSIS OF WHOPES PHASE III FIELD TRIAL OF BIFENTHRIN 10 WP, A
NEW PYRETHROID INSECTICIDE FOR THE CONTROL OF MALARIA
VECTORS IN FLORES ISLAND, INDONESIA**

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This study reports an analysis of a WHO Pesticide Evaluation Scheme Phase III field trial of Bifenthrin 10 WP, a new pyrethroid insecticide on the control of malaria vectors. The aim of this trial was to evaluate the efficacy of Bifenthrin 10 WP at a large scale on the control malaria vectors. The trial was designed and executed in Flores Island, Indonesia from October 1997 to August 1998 and data collected formed the basis of this study report. Four villages were included in the trial. Two of these villages were sprayed with Bifenthrin at a target dose of 25 and 50 mg/m² respectively. The third village received an indoors-residual spray with lambdacyhalothrin (ICON) at a dose of 25 mg/m² and the fourth village used as a control. The efficacy of Bifenthrin 10 WP on the control of malaria vectors was evaluated in comparison to lambdacyhalothrin insecticide and the control village. The results showed that both the biting indices and parity rates of malaria vectors including malaria transmission rates were significantly reduced Therefore Bifenthrin 10 WP has shown potentially characteristics for public health applications as an indoor residual insecticide suitable for the control of malaria vectors. However the good results obtained in this trial in Indonesia might not be obtained in other places of the world especially where there is a pyrethroid resistance and different vector species. Thus, there is a need now to carry out the same trials on different ecological settings.

THE EFFECT OF K-O TAB 1%, MOSTIQUAIRE 1% SC AND ETOFENPROX (VECTRON) 10% EW TREATED ON MOSQUITO NETS IN CHIREDZI

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This trial of mosquito nets treated with K-O Tab and Mostiquaire 1% at 20mg/m², and Etofenprox (Vectron) at 200mg/m² was undertaken at Chilonga, Chiredzi District, and South East Masving Province. Evaluations for each formulation were continued over a 6months period. Mosquito nets were polyester, 9.5m area, requiring 1 K-O tab tablet, 25ml Mostiquaire 1% SC, 19ml of Etofenprox and 4ml milk for the control were diluted to 350ml with water for impregnation. In bioassays conducted with *Anopheles arabiensis* females, mortality rates were 100% up to six months post treatment of K-O Tab, Mostiquaire 1% and Vectron for unwashed nets and all treatments were wash resistant after washing the nets once. All 3 formulations were safe for use by humans. Only vectron 10% EW continued to give 100% mortality 3 months post washing. In conclusion, K-O Tab, Mostiquaire and Etofenprox have demonstrated to be effective against *Anopheles arabiensis* over at months period for net impregnation.

THE EFFICIENCY OF THE CDC LIGHT-TRAP IN SAMPLING ANTHROPOPHILIC MALARIA MOSQUITOES: HOW RELIABLE ARE THE BITING RATES ESTIMATES?

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Interventions aimed at reducing malaria vectors through various methods required monitoring of mosquitoes before, during and after the intervention. Of recently, light-trap catches have been used to estimate man-biting rates and hence entomological inoculation rates. This has resulted into enormous variation in the transmission potential from one area to another. The objective of this paper was to review the suitability of CDC light-traps for monitoring changes in human biting rates of *Anopheles gambiae* s.l and *An. funestus* in Africa. The

entomological inoculation rate as estimated by light-trap collection and its relation with malaria transmission is briefly discussed. Recommended on future strategies in mosquito sampling are also discussed.

SOFTWARE FOR PERFORMING EXACT LOGISTIC REGRESSION

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Background: Logistic regression is widely used and accepted statistical method for analysis of clinical and epidemiological studies to investigate simultaneous relationship between several covariates and one binary outcome variable. Conventional methods for statistical inference in logistic regression may fail to derive valid results when normality assumptions are not met, typically when the sample sizes are small. However exact methods, which were made feasible by developments in computing algorithms, and access to computing power has made possible to get valid results from the study with small sample size.

Objectives: of this study were to develop software for performing exact logistic regression and then use the developed software to analyze a small sample secondary data set of 30 individuals to determine the association of HIV with condom use, sex, level of schooling and whether one uses alcohol or not. Lastly, to compare the results of the software with the results computed using conventional methods.

Results: Using the developed software, it was possible to study the effect of these four variables simultaneously. Condom and alcohol use were statistically significant at 5 per cent level, p-values 0.0052 respectively, however sex and schooling were not statistically significant p-values 0.58 and 0.19 respectively.

Conclusion: Results presented in this study have provided and justified the use of the software as statistical package for analysis of clinical and epidemiological studies with small sample sizes, unlike Fisher, exact test where we evaluate the effect of each variable separately, the study software enables us to investigate simultaneously the effect of all covariates and one outcome binary independent variable.

DIFFERENTIATION OF MYCOBACTERIUM TUBERCULOSIS STRAIN BY AMPLIFICATION OF VARIABLE NUMBER OF TANDEM REPEATS

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Repeated DNA sequences can be found in the genomes of both prokaryotes and eukaryotes. These repeats may occur in the form of major polymorphic tandem repeats (MPTR) containing repeats with substantial sequence variation in adjacent copies or exact tandem repeats (FTR) which contain identical sequence in adjacent copies. Variable numbers of tandem repeats (VNTR5) are repeats within ETR type representing a single focus showing interindividual length variability. The objective of this study was to differentiate strains of *M. tuberculosis* by amplification of tandem repeat sequences in different regions of the genome. Thirty-two regions of tandem repeats were identified through Blast search and seven out of these were analyzed. Pairs of primers were designed specifically to each locus and a total number of 78 isolates of *Mycobacteria tuberculosis* were studied. Two regions were not polymorphic. Five (72%) were polymorphic and by projection it is expected that 22 regions among the 32 searched are polymorphic. When the results of the 5 VNTR regions were combined, 32 types of *M. tuberculosis* were found. The discriminating power of the method is substantial though not as high as Southern hybridization with IS6110.

THE USE OF STDSIM MODEL IN MWANZA: DESIGN AND OBJECTIVES OF THE PROJECT

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Background Information: AIDS control programmes have adopted two principal intervention strategies. Firstly, Health Education to promote safer sexual behavior. Secondly, improved treatment services for other STDs, which are known to considerably enhance the sexual transmission of HIV. Despite increased persuasion of such measures, the continuing spread of

infection suggests that the overall level of response has been inadequate. The STDSIM simulation model has been developed as a tool for the monitoring and evaluation of different HIV/STD control strategies.

Objectives: The main aim of the model is to provide reliable information on the impact and cost effectiveness of these strategies or the prevalence and incidence of STD and HIV in different settings in rural Africa. This information will help policy makers to select more cost-effective strategies, tailored to the characteristics of local populations and hence contribute to the more effective control of HIV infection in the region.

Design: The model uses data from three randomized trials in rural populations in Uganda and Tanzania to establish the modal parameters. The trial in Mwanza, Tanzania evaluated improved syndromic management of STD's in 12 rural communities. In Rakai Uganda, the trial evaluated periodic mass treatment of STDs in the general population. In Masaka Uganda, the ongoing trial involves 3 arms using Information, Education and Communication (IEC) in combination with improved syndromic management of STDs.

Methods: In the first step, the STDSIM model will use the Baseline data from the trials to improve the parameters in the model itself. In the Second step, the model will be used to predict the outcomes in all the three trials and compare to those observed. In the third step, through subsequent standardization of cost and effectiveness data, the model will be able to compare the impact on HIV incidence and cost effectiveness of each strategy in the three populations.

Finally, if these steps are successful, planners and health authorities in Tanzania and elsewhere to predict the impact and cost effectiveness of different intervention strategies can use the model.

Conclusion: Modelling work has demonstrated how population actors (including many factors related to sexual behaviour) seem to be particularly important in facilitating the spread of HIV infection. The STDSIM will provide a clearer understanding of the relative effectiveness of various strategies for STD/HIV control in different populations

SESSION: 5 HEALTH SECTOR REFORMS AND ITS IMPLICATION ON HEALTH PROVISION IN AFRICA

EVALUATION OF THE “INTERGRATED MANAGEMENT OF CHILDHOOD ILLNESS’ IN TANZANIA

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Rationale: Through better case-management, health systems, and family practices, the IMCI strategy addresses five leading causes of childhood deaths in the world: pneumonia, diarrhoea, measles, malaria and malnutrition. In Tanzania there is a special opportunity for a “plausibility design” approach in which it is possible to document outcome indicators in two intervention districts with IMCI (Morogoro Rural and Rufiji) and in two similar, contiguous comparison districts (Kilombero and Ulanga) where IMCI has not yet been implemented.

Objectives and methods: 1. Measure the impact of IMCI on under-five mortality through ongoing demographic surveillance in each district. 2. Assess the effect of IMCI on child health indicators at household level. Household surveys in 1999 and 2002 will provide information on morbidity, malnutrition, and coverage of preventive interventions, care-seeking patterns and client health care costs. 3. Assess the effect of the IMCI strategy on child health care at health facility level. A survey in 2000 will compare health facilities, providers and provider costs in the 4 districts. 4. Document IMCI implementation in the two intervention districts, using data from TEHIP. 5. Describe relevant activities other than IMCI in all four districts. Information will be collected on contextual factors related to child health that may account for differences between IMCI and non-IMCI areas. 6. Estimate the economic cost of MCI from a societal perspective (i.e. government provider as well as client cost). Cost data will be collected in the household and health facility surveys, and at district and national level.

Results and conclusion: Selected results from the baseline household survey in the 4 districts will be presented. Collaboration between existing research programs has given a unique and exciting opportunity for evaluation of IMCI.

TRANSLATING RESEARCH FINDINGS INTO PUBLIC HEALTH USE: USING THE EPI SCHEME TO PROVIDE INTERMITTENT MALARIA TREATMENT AND IRON SUPPLEMENT FOR PREVENTION OF MALARIA AND ANAEMIA IN INFANTS LIVING IN MALARIA ENDEMIC AREAS

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Rationale: Severe anemia is leading cause of morbidity and mortality in infants living in malaria endemic areas. It has been revealed from a recently completed study in Ifakara that malaria is the commonest cause of anaemia in children living in areas with high malaria transmission, followed by iron deficiency. Following those results we are doing a study on the prevention of malaria and anaemia in infants through intermittent malaria treatment, and iron supplementation, administered through the EPI scheme. **Objectives:** 1 Test EPI framework as a targeted delivery system for iron supplement. 2. Test efficacy and effectiveness of intermittent malaria treatment. **Methodology:** Children are recruited and randomized when they come at the MCH for their routine EPI vaccinations at two months of age. Ferrous sulphate supplement is given to all children from two months to six months given by mothers at home, while SP/Placebo is given at two, three, and nine months at the MCI-I. Children are followed up for disease incidences through passive case detection for eighteen months. Iron supplementation compliance is monitored at the MCH when they attend for routine weighing or vaccination activities. Cross-sectional surveys will be performed at 9,12 and 18 months during which blood will be collected for determination of immune responses to polio, DPT, and measles, and also for haematological parameters. **Conclusion** Interventions to reduce the burden of anaemia in malaria endemic areas can aim at providing iron supplementation together with malaria chemoprophylaxis. So far the best pragmatic approach, which can be used to achieve the desire effect, is through the EPI scheme.

**THE DISRTICT HEALTH MANAGEMENT TEAM (DHMT) MEMBERS OF
TEMEKE AND ILALA DISTRICTS IN DAR ES SALAAM EXPERIENCES ON
HEALTH RELATED DOCUMENTATION STRATEGIES AND HSR**

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Temeke Municipal Council P O Box

Improving the quality and delivery of the health services to all Tanzanians will depend much on adequate and appropriate information on the burden of disease and related essential health needs. Health Sector Reform, under the Ministry of Health, implements its activities using various data sources. These data sources have some limitations in providing information that would assist the health management teams in setting priorities, policy making, and planning. The community-based data will assist the district planners and policy makers to improve planning and priority setting. One recently established additional source of community-based data is that of the Adult Morbidity and Mortality Project (AMMP), being implemented in Dar Es Salaam City, Morogoro rural, and Hai Districts in Kilimanjaro region. The methods employed by this project in data collection include repeated censuses to determine the demographic and socio-economic structure of the study population hence defining a reliable denominator. The other method is the verbal autopsy used for continuous community mortality surveillance. As a result data collected by the AMMP include; total births and deaths from the study areas, socio-economic status including education levels, health services that were used before death, major causes of death in the community. The experience from AMMP has demonstrated its capacity to provide information from the community perspective for complementing information from other sources (e.g. HMIS, TB and leprosy Program, National AIDS Control Program, etc) This method of community mortality surveillance and censuses if performed regularly in selected sentinel areas can be used to obtain additional information on health and health related problems in the community for district and national planning. The information may be used in assisting the districts in setting priorities, planning, and rational use of scarce resources.

QUALITY OF HEALTH LABORATORY SERVICES IN PRIVATE DISPENSARIES IN MWANZA MANICIPALITY

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Introduction: Laboratory services backup primary health care by providing scientific support particularly in diseases with unspecified clinical signs. Therefore in order to monitor the efficiency of laboratory services with the time of changes in health policy reforms, a survey was done in December 1998 in Mwanza Municipality.

Objective: To identify current problems in laboratory services after the inception of health policy reforms.

Methods: 60 private dispensaries were visited in Mwanza Municipality. A detailed questionnaire on essential laboratory services/equipment, quality of premises and expertise needs was administered. The assessment was based on Laboratory Manual for the Health Centre level — 6-1993.

Results: The results showed that 3 (5%) dispensary laboratories provided services at a required standard 45 (75%) provided inadequate laboratory services while 12(20%) had no laboratory services at all.

Conclusion/Recommendations: The laboratory services provided by the private Health Units are still inadequate. In view of the above observation therefore it was recommended that provision of laboratory services be one of the pre-requisite for registering a Health Unit.

**SESSION: 6 RE-DEFINING COMMUNITY HEALTH PROBLEMS IN THE
CONTEXT OF HEALTH SECTOR REFORM**

**FACING THE CHALLENGES OF RE-ORGANIZING SERVICES THROUGH
CAPACITY BUILDING FOR BETTER DELIVERY, GREATER UTILIZATION
AND COVERAGE: THE CASE OF KILOSA DISTRICT**

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Under health sector reforms districts are challenged to efficiently organize the delivery of Health services for adequate coverage and better delivery of quality services. The demand occurs in the context of low human, materials, financial resources and limited capacity to plan, implement and evaluate alternative options. This paper reviews the scenario in Kilosa district in relation to potentials offered by two projects. The projects contributed directly and indirectly to improved service delivery, use and coverage through schools by targeting the school aged. International efforts to build the district capacity to deliver health care services and maximize utilization of care among the school aged coupled with research activities are being undertaken at district level through the Kilosa School Health Project (KSHP). On the other hand, the Community Education Fund (CEF) aims at raising enrolments and quality/learning outcomes of primary education through increased parental participation and financing, school-based planning and management of resources, school-based quality enhancement initiatives, and improved support for schools at the district level. The KSHP team has members from both the DEO and the DMO. While the CEF works principally with the DEO. Many more key agencies contribute to the implementation of similar objectives in the district. Each agency offers certain options as strategies to facilitate its objectives and those of the district. Such a situation requires efficient co-ordination and reconciliation of roles at all levels from the planning stage to implementation and evaluation. The review establishes that under the ongoing reforms there is an ever-growing need for "reconciling the planning, implementation and evaluation activities of different departments and donors. That, with proper co-ordination, planning and communication, activities with similar objectives can be integrated for more efficient results. With such reconciliation, awareness of the shared objectives will be maximised and more resources will be pooled together to adequately facilitate the implementation of shared objectives.

Optimal reconciliation will save district executives from the danger of overstretaching themselves when attempting to attend each agency as an entity. Ultimately the need for greater capacity, improved coverage, utilisation and delivery of quality services will be achieved.

DECENTRALISING THE TUBERCULOSIS SERVICES IN THE KILOMBERO DISTRICT

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In 1996, the DHMT of Kilombero district realized that there was a twofold increase of the prevalence of tuberculosis in the district; the cure rate of tuberculosis has fallen from 80% in 1994 to 40% in 1996. This was interpreted as typical signs of deterioration of the tuberculosis services in the district. Urgent measures needed to be taken in order to control the situation of epidemic in the district. The tuberculosis services were available only at the health facilities with hospital and health centre status. The tuberculosis services are being provided as a vertical programme under the supervision of the NTLP. The DTLC was responsible to the NTLP and not the district. This work describes steps taken by the district health management team to address the situation as tuberculosis is considered a public health problem priority in the district. The objectives were to decentralise the TB services in the district. To optimise TB services in the district. To involve the community in the TB programme in the district. It is an ongoing project, however, the TB services are now available in all health facilities in the district and more diagnostic centres have been opened. The services are now provided at the community level. The DTLC is now responsible to the DMO. It has very much reduced the burden of tuberculosis to the health facilities and to the community as a whole.

INITIAL SITUATIONAL ANALYSIS OF THE HOUSEHOLD UTILIZATION OF ESSENTIAL HEALTH INTERVENTIONS FOR CHILDHOOD ILLNESSES IN MOROGORO RURAL AND RUFIDI DISTRICTS TANZANIA

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The household health seeking behaviour project is a behavioural research component of the Tanzania Essential Health Intervention Project (TEHIP). The research is being carried out in Morogoro rural and Rufiji districts where TEHIP is testing the feasibility and measuring of the impact of evidence based approach to health planning at district level. The research component addresses issues on household health seeking behaviour 'by focusing on two tracer interventions contained in the two districts health plans, namely the Integrated Management of Childhood Illnesses (IMCI) and Insecticides Treated Nets (ITNs). In the Initial Situational Analysis of Utilisation Analysis of Utilisation Patterns of existing health services, rapid assessment procedures (RAPs), a qualitative approach was used to gather data utilisation patterns, lay perception of local symptoms definition, signs of illness and associated aetiology and treatment options and preventive measures utilised. Data was also gathered on treatment management group and their influence in the choice of care, costs associated with seeking care and mosquito protection and the perception of ITNs. This paper focuses mainly on community perception of childhood illnesses and protection behaviour against mosquitoes. In both districts more than 44 different illness conditions were mentioned. This paper will only deal with 5 illness conditions, which are common in both districts and are relevant to the IMCI programme. The research findings indicate that communities have their own definition and perception of signs, symptoms, aetiology and treatment options, which in all times are not to the biomedical understanding. The research findings imply that there is a need to strengthen health delivery programme. Communities' perceptions and patterns are not made in a vacuum. They are shaped by a number of factors, some of which are in the purview of the health systems.

EXISTING AND PREFERRED PAYMENT MEANS AND MECHANISMS FOR THE POOR AND VULNERABLE GROUPS IN HEALTH SYSTEMS: A CASE STUDY OF KOROGWE DISTRICT, TANZANIA

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In most developing countries including Tanzania, policy makers have been thinking of alternative ways of payment for health care that would enable the poor and high health risk population groups to afford the cost of their primary health care needs. Such a thinking or concern has been merging from the experience or perception of many people living in those countries or else where in the world that a reliance hard cash payment system at health facility counters has deterrent impacts on utilisation of user-charging health-facilities by the poorest population groups. In the light of this, payments in-kind and prepayment mechanisms have been proposed as alternatives to those who may find it difficult to pay by hard cash for their healthcare needs. A descriptive cross-sectional study has been undertaken in Korogwe District in northeastern Tanzania to assess, among other things, the means and mechanisms of payment for healthcare suggested and acceptable by both the providers and users of healthcare. The methodology used in the study and the results obtained are discussed in this paper.

PERCEPTIONS, ATTITUDES AND PRACTICES OF THE PEOPLE CONCERNING SCHISTOSOMIASIS AND THEIR IMPLICATIONS FOR CONTROL IN UKERewe DISTRICT, TANZANIA

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Rationale: People in developing countries face many health problems that remain neglected and poorly understood. They need relevant knowledge that will impart skills and develop their action competence to effectively control diseases.

Objectives: To determine perceptions, attitudes and practices of the people of Ukerewe District concerning schistosomiasis and patterns of health seeking behaviour, and utilize the

findings to formulate and implement action-oriented health education intervention package.

Methodology: Twenty-one Focus Group Discussions and one hundred and fourteen In-depth Interviews were conducted with a cross-section of the people of Ukerewe Island. On top of that, unstructured observations were conducted throughout the study.

Findings: All the study participants unanimously agreed that schistosomiasis is a chronic health problem affecting them. They associated some of the symptoms with witchcraft and traditional taboos such as seeing or killing a python. Informants were aware of preventive measures, but this was not reflected in their health habits. Their treatment seeking behaviour revealed utilization of the popular, folk and modern sectors of health care.

Conclusion: There is a need to undertake action-oriented health education interventions among the people of this community so as to influence their health habits and enhance their action competence to control the infections.

THE STATUS OF SCHISTOSOMIASIS IN UKEREWE ISLAND: PARASITOLOGICAL FINDINGS

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Schistosomiasis is known to be endemic in the Lake Victoria zone. The determinants and distribution of this infection in the population are not well known. A cross-sectional study to investigate among others the distribution pattern of schistosomiasis and its determinants in Ukerewe district was undertaken in the main island of Ukerewe, Lake Victoria. Twelve villages out of 74 villages on the island were selected by two-steps randomization, to obtain six inland and six lakeshore communities. A total of 1966 individuals (994 from inland villages and 972 from lakeshore villages were examined for *S. mansoni* infection by a modified Kato thick smear method. The prevalence of *S. mansoni* was 54% in the inland communities and 80% in the lake shore communities. The arithmetic mean egg output was 112 and 546 eggs per gram of feaces in inland and lakeshore communities respectively. The observed prevalence and intensity of *S. mansoni* seem to vary in the communities of the Island in accordance to the proximity to the Lake. A dual method of control that would incorporate the integration of chemotherapy and health education relevant for the control of transmission is suggested, as continuous exposure to infection was found to be associated with lack of proper knowledge on the infection.

SCHISTOSOME MANSONI RELATED HEPATOSPLENIC MORBIDITY IN UKEREWE ISLANDS COMMUNITY: BASELINE ULTRASONOGRAPHICAL FINDINGS.

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Introduction: Ukerewe islands are among highly endemic area of *S mansoni* infection, where hepatosplenic morbidity assessment using ultrasonography was conducted in order to provide baseline data for an integrated schistosomiasis control including chemotherapy and health education.

Methodology: The ultrasonographical staging system of hepatic fibrosis was done on 1423 randomly selected individuals in Ukerewe district, by comparing image of the liver with standard reference pattern. The organometric measurement and scoring approach of periportal fibrosis were done according to WHO (Niamey-Mali 1996) guideline. Stool examination was done by a modified Kato thick smear technique.

Results: Borderline hepatic morbidity indicating a peripheral fibrosis, stage IA was found in 13.4%. Others definite periportal fibrosis were; stage 1B in 15.6%, stage II in 3.1% and stage III in 0.6%. Periportal fibrosis was; 7.9% in borderline stage IA, fibrosis. Onshore village had significant higher prevalence of periportal fibrosis than inland ones. The prevalence and severity of hepatic fibrosis increases with age; stage III was never observed in subjects under 30 years. There was a positive correlation of splenomegaly and right liver lobe shrinkage with severity of ultrasonographically detectable periportal fibrosis. The other nonspecific liver sonomorphological abnormalities related to *S. mansoni*, such as surface, caudal edges and texture of the liver were also found to be highly associated with periportal fibrosis. Out of 245 subjects identified as a case of periportal fibrosis, 69(28%) of them (according to parasitological evidence) were not excreting *S. mansoni* eggs, and this tendency of not excreting eggs among those subjects increased with age.

Conclusion. *S. mansoni* is a public health importance in Ukerewe islands community, because it accounts for high hepatosplenic morbidity. Therefore, an integrated schistosomiasis control for the islands is justifiable.

FIELD EXPERIENCE IN VENOUS BLOOD PUNCTURE SAMPLING DURING SCHISTOSOMIASIS SURVEY STUDY IN UKEREWE DISTRICT, TANZANIA

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Introduction: Venous blood puncture is an invasive procedure commonly used in collecting blood for epidemiological field survey. However such invasive procedure is being limited by poor compliance, which in most cases affects the success of some field surveys.

Objective: I present field experience obtained during a schistosomiasis survey study in Ukerewe district, which also involved taking venous blood for assessing the morbidity marker for *S. mansoni* related hepatic morbidity.

Methods: a total of 356 subject above 5 years old were randomly selected this number was equivalent to 20% of the study population. After being fully counseled and sought consent for venous blood puncture, 10mIs of Venous blood was drawn by venous puncture at the cubital fossa (as non-painful site for draining blood) using a sterile vacutainer tube.

Results: 11 (4%) out of 356 subject refused venous blood drainage among reasons cited by study subject include; scared for being screened for HIV, other thought that the amount of blood sampled (10mls) was too much. This tendency pattern of poor compliance among these subjects had significant association with the older ages and female gender.

Discussion and Recommendation: Implication of the result findings for future similar field health survey is discussed and some recommendation made for that.

S. MANSONI-RELATED MORBIDITY ON UKEREWE ISLAND IN LAKE VICTORIA, TANZANIA: REPORTED SYMPTOMS

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Introduction: Reported symptoms if properly studied can be used to develop questionnaires for rapid and cost effective assessment of intestinal schistosomiasis morbidity. However, the morbidity is always clustered and varies with locality.

Objective: To determine the diagnostic performance of reported symptoms associated with *S. mansoni* infection on Ukerewe Island.

Patients, Materials and Methods: Parasitological examination for *S. mansoni* infection was done on 1952 by Kato method on two consecutive days stools. A presented standard questionnaire was conducted in each individual.

Results: Except abdominal pains, diarrhoea, blood-in-stool, dysentery and hematemesis increased with prevalence and intensity of infection ($p<0.05$). Abdominal pains were the most prevalent (75.3%) but had no significant correlation with infection ($p=0.18$). Though specific these symptoms were not sensitive to be recommended for community diagnosis. None of the symptoms had a population attributable fraction beyond 50%.

Recommendation: The symptoms may be used for individual presumptive diagnosis but not for community screening.

VALIDITY OF THE WHO THRESHOLD IN SCREENING FOR SCHISTOSOMA HAEMATOBIUM MORBIDITY

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Introduction: Heavy *Schistosoma haematobium* infection is associated with haematuria as a manifestation of urinary bladder disease. The WHO has set out a threshold of (50% eggs/10ml of urine) for *S. haematobium* morbidity. This study explores the validity of this threshold of egg output in discriminating those with visible haematuria due to *Shaematobium*.

Objectives: To determine the validity of WHO threshold (>50 eggs/10 ml of urine) for screening for *Shaematobium* morbidity (haematuria).

Materials and Methods: Primary school children aged between 8 and 12 years from class 2 through 6 in 10 schools in Misungwi district Tanzania were admitted to the study. Urine specimens were inspected for visual haematuria prior to filtration and subsequent quantitative microscopic examination.

Results: Over 78% of the 294 pupils recruited for the study *S. haematobium* infections. Fifty-nine (20% of the study subjects had visual haematuria. Out of the pupils with haematuria 15 excreted less than 50 eggs/10ml of urine. Moreover 111 children excreted more than the

WHO threshold for morbidity without visual haematuria. The WHO threshold for morbidity (>50 egg/10ml of urine) showed a sensitivity of 28.4% and specificity of 11.4%. The positive predictive values and negative predictive values were 74.6 and 48.7 respectively. There was a low degree of agreement between visual haematuria and heavy *S. haematobium* infection.

Discussion: Despite its simple applicability WHO threshold for the disease was not found to be a dependable method for screening for *S. haematobium* morbidity. Other clinical examinations such as urethral and bladder dysuria, frequency of micturition, clouding of urine coupled with dipstick need to be performed for better management of the disease.

EVALUATION OF HUMAN SCHISTOSOME CIRCULATING ANTIGENS: SURVEY OF HUMAN SCHISTOSOMIASIS IN ENDEMIC AND NON-ENDEMIC AREAS OF TANZANIA

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Diagnosis of schistosomiasis depends mainly on microscopic detection of eggs in the stool or urine. Faecal-cellophane thick smear as modified by Peters et al (1982) is accepted as a gold standard for individual diagnosis of intestinal schistosomiasis. The method, though specific, faces a problem of day to day fluctuation of egg output, sharing of stool specimens by examinee, intravariations of egg distribution in the same specimen may result in false reporting of infection prevalence. Immunodiagnostic techniques based on circulating antigens may give solution to some of these problems. However their evaluation in endemic areas is limited.

Objectives: To determine the prevalence and intensity of *S.mansoni* in primary school children from selected schools in endemic and non endemic areas by both Kato and Schistosome Circulating Antigens (CAA) ELISA techniques.

Methods: Two non-endemic primary schools namely Borega A and Kubiterere (n=100) on Tarime highlands and one endemic school Ilemela on Lake Victoria shore in Mwanza (n=51) were surveyed. Kato and urine parasitologically examined stool and urine for schistosome eggs filtration techniques respectively. Serum samples were screened by CAA-ELISA.

Results: Parasitological and ELISA prevalence data were as follows:

Kato Methods	CAA-ELISA
Non-endemic (n= 100) 2%	4%
Endemic (n= 51) 90%	87%

The correlation between serum CAA levels and faecal egg counts was positive ($r=0.47$). The sensitivity and specificity of ELISA test was 89% and 40% respectively. No *S haematobium* was found in either area.

Discussion: Two out of four children who were found to be positive for *S. mansoni* infection by serology and parasitology, in a non-endemic area, were coming from an endemic area. CAA-ELISA may be recommended for larger scale surveys, but its procedure needs to be simplified for primary health care.

MANAGEMENT OF MALARIA PATIENTS ATTENDING SEKOU-TOURE REGIONAL HOSPITAL, MWANZA TANZANIA

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Introduction: Malaria ranks first among the ten common diseases in Tanzania. The disease remains the major cause of hospital admissions and mortality. This is a study of malaria cases diagnosed at SekouToure Regional Hospital, Mwanza, Tanzania over a period of 4 years (1995-1998). The hospital is located in Lake Victoria basin where malaria is holo-endemic.

Objectives: To determine the Malaria management at a level of a regional hospital in an endemic area, specifically to determine the reverence of malaria cases among patients attending the hospital, the diagnostic methods used at the hospital and the chloroquine resistance rate in malaria cases.

Methods: The study was done at Sekou-Toure regional hospital, which caters for a captive population of 1.7 million. Data were collected from hospital records at the Out Patient Department (OPD). Information on patients' background (such as age, sex),

clinical history, method of diagnosis (clinical and/or laboratory), whether admitted or not, treatment given chloroquine or second line), and outcome (died in hospital or not). The history of fever was investigated in order to correlate it with parasite rates. Findings: Records from the OPD showed that out of 140,838 individuals who reported at the hospital, 43,660 (31%) were diagnosed to have malaria, of whom 12,656(29%) were admitted. High fever was the main criteria for admission. Under five comprised of 38% of the admitted malaria cases. The records further showed that during the study period, deaths per year of admitted malaria cases, ranged from 13% in 1995 to 25% in 1998. The treatment protocol, that is choice of drugs and mode of administration, was decided on the basis of age of the patient, clinical presentation and severity of the illness. In most of the cases, chloroquine was used as a first line drug for the treatment of severe malaria.

Discussion: Although chloroquine was used as the first line drug for the treatment of malaria cases, the increasing resistance of malaria parasites to the drug requires that other more effective antimalarials be used in Mwanza. The pattern of malaria and its management in such a setting is presented and discussed.

PLACENTAL MALARIA IN PREGNANT WOMEN FROM MWANZA, TANZANIA: RESULTS FROM A PROSPECTIVE COHORT STUDY

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Objective: To measure the prevalence of placental malaria during pregnancy in a cohort of urban antenatal clinic (ANC) attenders.

Materials and Methods: A prospective cohort of antenatal clinic (ANC) attenders has been recruited in Mwanza to measure the effectiveness of syphilis screening to prevent adverse pregnancy outcomes. As part of the protocol all women were offered chloroquine prophylaxis during their pregnancy. At delivery a maternal fingerprick sample and a placental blood film were collected to make a blood smear. These were air-dried, stained with 10% Giemsa stain and examined for malaria parasites by light microscopy using the x100 objective. A placenta

biopsy was also taken from each woman at delivery and was examined histologically for changes in the placenta indicating placental malaria infection. These biopsies were scored using the Bulmer histological scoring system. This examines the distribution of parasites and pigment in the placenta and scores as follows:

negative, active chronic and past chronic infection.

Results: Complete results are currently available on 406 cohort women who had placental samples collected at delivery. The prevalence of malaria on the placental blood smear at delivery was 31.8% (129/406) and on the mother's peripheral smear was 28.8% (116/406). The prevalence of different stages of placental infection in the biopsies was active infection 3.5% active chronic 10.6% and past chronic infection 26.8%. Overall 40.9% of women had histological evidence of parasitised placentas during their pregnancy. On univariate analysis placental malaria infection was associated with low birthweight (χ^2 31.8, $p<0.001$) and premature delivery (χ^2 36.5, $p<0.001$).

Discussion: Placental malaria infection was common in this population of pregnant women and is associated with adverse pregnancy outcomes. Despite chloroquine prophylaxis nearly 29% of women had malaria parasitaemia when admitted for delivery and 40% had changes on the placental biopsy reflecting malaria infection at some stage in their pregnancy? The use of sulphadoxine/pyrimethamine as malaria prophylaxis in pregnancy may reduce adverse pregnancy outcomes attributable to maternal malaria infection.

CAN LOW BIRTHWEIGHT BE USEFUL FOR ASSESSING MALARIA EXPOSURE IN PREGNANCY?

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Background: Malaria in pregnancy is a risk factor for low birthweight (<2500 gm). It has been estimated that up to 60% of low birthweight babies born to primigravidae may result from falciparum malaria. Risk of malaria is greater in primigravidae than multigravidae and this excess risk can be used as an indicator of malaria control in pregnant women. An outline will be presented of the derivation birthweight indicators for use for malaria surveillance.

Methods: Birthweight data from 11 malarious and 3 non-malarious African countries was analyzed. The odd ratio for the excess risk of low birthweight in first compared to later

pregnancies was calculated and related to malaria prevalence. This produced a simple birthweight chart (normogram), which showed how low birthweight risk varied with malaria transmission intensity.

Application: The birthweight normogram should be useful for assessing changes related to introduction of new antimalarial drugs, for detecting the emergence of drug resistance and for identifying groups where malnutrition in pregnancy is a problem independent of malaria exposure. It provides a simple, inexpensive tool, which could have wide application for malaria surveillance. As birthweight and parity are routinely measured and recorded in many delivery facilities in Tanzania its use by health workers in areas of different malaria endemicity may provide an important monitoring tool.

Conclusion: A birthweight normogram currently available may provide a useful tool for assessing malaria control in pregnancy.

BACTERIAL VAGINOSIS DURING PREGNANCY, MWANZA, TANZANIA: RESULTS FROM A PROSPECTIVE COHORT STUDY.

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Objective: To measure the prevalence of bacterial vaginosis (BV) during pregnancy using the Nugent criteria in a cohort of urban antenatal clinic (ANC) attenders.

Materials & Methods: As part of a prospective cohort study to measure the effectiveness of syphilis screening to prevent adverse pregnancy outcomes, pregnant women recruited into the cohort at their first visit to the ANC were screened and treated for other reproductive tract infections (RTIs) including BV. Women recruited before 32 weeks gestation were re-screened and treated for new RTIs in the third trimester. Symptoms of vaginal discharge and the presence of discharge on examination were noted at each visit. Bacterial vaginosis (BV), candidiasis and the presence of clue cells were diagnosed by gram stained vaginal smears, *C. trachomatis* (CT) by ELISA, *T. vaginalis* (TV) and *N. gonorrhoea* (NG) by culture. BV was scored using the Nugent criteria.

Results: Complete results are currently available on 1059 cohort women (339 RPR+, 720

RPR-). Only 19% of women attended clinic at <20 weeks gestation. The prevalence of BV at recruitment was 27.7% by the Nugent score and was the most prevalence RTI identified. 38% (403/1059) of women had a vaginal discharge on examination. There was no association between BV infection and women who complained or did not complain of vaginal discharge (12% vs 14%, p=0.4). There was also no association between the presence or absence of vaginal discharge on examination and BV (30% vs 26%, p=0 .23). Similar results were seen if women with other RTIs were excluded. A diagnosis of BV based on both the presence of a vaginal discharge on examination and clue cells had a sensitivity and specificity of 39% and 98% compared to the Nugent score. The proportion of initially uninfected women who developed BV between the screening visit (in first/second trimester) and the third trimester was 10% (54/565). 39/201 women 19% with BV at the first screen also had BV in third trimester, either due to inadequate treatment or re-infection.

Conclusion: BV in early pregnancy is associated with pre-term birth and low birth weight. These preliminary results show both a high prevalence of BV and a high proportion of new cases of BV in this cohort of ANC attenders. An accurate diagnosis is essential if women are to be treated to reduce adverse pregnancy outcomes associated with BV infection. The gram stain method of BV diagnosis requires an experienced microscopist but has proved feasible in this setting where relying on clinical criteria in pregnant women for BV diagnosis would be unreliable.

PARTICIPANT OBSERVATION WITH RURAL ADOLESCENTS: A SEXUAL BEHAVIOUR RESEARCH TOOL

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Background: Most sexual behaviour research relies upon self-reported information because of the private nature of sexual activity. This can be problematic, as informants may have poor recall or they may intentionally give incorrect information if their behaviour differs from

their moral values or social norms. Participant observation is one of the few sexual behaviour research methods that do not rely upon self-reporting, and thus can be an important way of validating and expanding upon self-reported information.

Methods: In July 1999, young researchers in Mwanza began living in villages for seven weeks at a time as part of MEMA kwa Vijana Project participant observation research. Over a three year period, four researchers will spend a total of 150 weeks in intervention and comparison communities trying to better understand the general behaviour of rural adolescents and specific ways in which the MEMA kwa Vijana intervention may have had an impact on their sexual behaviour. Researchers also attend social activities, such as ngoma, video shows, weddings, and funerals. Once a day, researchers carefully document their observations of general rural life, as well as observations specific to adolescent sexual behaviour, such as sexual negotiation in public areas. Field notes will be analyzed using the qualitative data analysis programme NUDIST Results: Preliminary findings from the first participant observation visits suggest that sexual activity is common among rural youth in Mwanza Region. Sex is often negotiated when boy or man approaches a girl or an intermediary at social gatherings or while the girl is on an errand, e.g. fetching firewood, water, or going to market. Sex often happens late at night, when girls sneak away from their homes to meet a partner in the bushes, his room, or a "getto" — a common room shared by young men for that purpose. Alternatively, sex may happen during the day, especially if the girl sleeps near to her parents at night. The boy or man almost always gives cash or a gift such as soap, body oil, or underwear to the girl in exchange for a sexual encounter

IN-DEPTH INTERVIEWS WITH RURAL ADOLESCENTS: A SEXUAL BEHAVIOUR RESEARCH TOOL

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Background: Qualitative research methods enable researchers to collect detailed information on areas that can only be addressed superficially in large-scale quantitative surveys.

Qualitative methods also may be less structured than quantitative research, allowing Informants to raise unanticipated topics that the researcher can then pursue in more depth.

Methods: In September 1999, young MEMA kwa Vijana Project researchers began conducting in-depth interviews with rural youth in Mwanza. Over a three-year period, they will conduct 240 interviews with 180 youth. These youth were 14 to 17 years old at baseline; 1/3 of those interviewed will be HIV+ at the time of their interview, while 2/3 will be randomly selected. Interviewed youth are selected from both intervention and comparison communities, with the goal of better understanding the ways in which the MEMA kwa Vijana intervention may have an impact on youth sexual behaviour. Interview topics include health-seeking behaviour, opinions about youth sex, and personal experience of sex, pregnancy or STDs. Interviews are conducted Swahili or Sukuma, the dominant local language, and generally last two hours. Interview transcripts will be analysed using the qualitative data analysis programme NUDIST.

Results: 34 interviews have been completed to date, of which 10 were with HIV+ youth. Overall, youth report having had sex in the past, but generally not more than 1-3 times. Girls generally say their incentive to have sex is the gifts or cash (500-1,500 Tshs) that the boy or man gives them, which they use for practical needs such as soap, body oil, or underwear. Boys report physical desire, curiosity and peer pressure as the main reasons why they have had sex. Youth report negotiating sex when meeting on the road, while fetching water or firewood, and at discos, and having sex at any place where parents will not catch them, such as in bushes, in empty buildings, or at home when their parents are away at weddings or funerals.

FOLLOWUP OF A COHORT OF ADOLESCENTS IN A COMMUNITY RANDOMISED TRIAL IN RURAL TANZANIA: METHODS USED BY MEMA KWA VIJANA TRIAL IN MWANZA

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Background: To evaluate the impact of an Intervention on the incidence of disease, cohort trials are essential. Cohort trials where the community is the unit of randomisation are being used to evaluate the impact of lifestyle interventions on long-term disease outcomes. However, following a cohort over many years is costly and difficult and other studies have shown that up to 5% of the cohort may be incorrectly identified in follow-up surveys. The MEMA kwa vijana Project is implementing an innovative intervention on adolescent productive and sexual health in rural Mwanza. An important objective of the project is to evaluate the impact of the intervention on the incidence of HIV and STD and the prevalence of unintended pregnancies among adolescents. This will be done by following a cohort of 9300 adolescents in rural communities of Mwanza region over 3 years.

Objective: To describe the method used in NIMR Mwanza, by the MEMA kwa Vijana project to recruit and trace a cohort of adolescents. Cohort design: In September 1998, cohort recruitment survey started in 121 schools in 4 rural districts of Mwanza region. Pupils in standards 4, 5 and 6 aged 14 years and above were recruited. The Intervention started in standard 5-7, at the start of the 1999 school year. The interim follow up will start in January 2000, eighteen months after recruitment. The final follow-up survey will take place between September and December 2001, three years after recruitment

Methods: An enrollment phase was included in the cohort recruitment survey. This phase was distinct from the baseline collection of biological samples and self reported behaviour and was designed to collect identification data on the pupils and to take a photograph. Part of these data, a unique ID number and the photo appear on the ID card given to each respondent. At each follow-up, survey lists of cohort members can be produced by class or by Kitongoji of residence. Additional questions can be included in the questionnaire to check the identity

of every member of the cohort. Questionnaires do not carry names of participants, but do contain the unique ID number. In each survey biological specimens and questionnaires are linked using a pre-printed sticky label, taken from a different series on each occasion

Conclusion: The MEMA kwa Vijana trial will be the first study anywhere in the world to evaluate the impact of a behaviour change intervention on biological markers for HIV and STD. These methods for the follow-up of the cohort will ensure:

- I) Correct identification of the cohort members.
- II) Confidentiality of reported behaviour and disease status.
- III) The correct linkage of laboratory results to cohort members.

PREVALENCE OF HIV AND SYPHILIS IN WOMEN ATTENDING ANTENATAL CLINICS AND IN THE GENERAL POPULATION IN RURAL MWANZA, TANZANIA

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Background: In many countries, sentinel surveillance has been used to provide information on the prevalence and trends of HIV and syphilis infection. However, there is limited information on the comparability of HIV and syphilis prevalences in pregnant women attending ANC and women in the general population.

Methods: In 1992, a population-based serosurvey was conducted in 12 rural communities in Mwanza Region, Tanzania. Sera were collected from ANC attenders within each of the 12 communities at the same time and 18 months later. Sera were available from 5,690 women aged 15-44 years from the population-based survey and from 1052 and 1218 women in the same age range for the first and second ANC survey respectively. All sera were tested for HIV and syphilis.

Results: The overall prevalence of HIV was significantly higher in women in the general population than ANC attenders (4.7% Vs 3.60/o, p=0.025). The ANC HIV prevalence was

slightly, but not significantly higher in the youngest age group (15-19 years) relative to the women from the general population (2.2% Vs 1.8%, p=0.6). The reverse was true in the women aged 30-44 years (2.3% Vs 4.3%, p=0.03). HIV prevalence in women in the ANC attenders and general population from the same communities was highly correlated ($r=0.76$, $p=0.005$). Similar patterns were found for syphilis, but with much higher prevalence.

Conclusion: In this rural population, sentinel surveillance of pregnant women attending ANC may be sufficient to give a picture of HIV and syphilis prevalence of women in the general population (aged 15-29 years). The prevalence of HIV in the 15 to 19 years age group among women attending ANC would slightly but not significantly overestimate the prevalence of HIV in women of the same age group in the general population.

PATIENTS' HIV SERO STATUS: WHO SHOULD BW TOLD?

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Background: The increasing number of AIDS patients in health care facilities, influence the need for community response to provide care and support to patients. The main care providers of patients in the community are close relatives who in most cases do not know whether their patient is suffering from AIDS or something else mainly due to patient's unwillingness to disclose their sero status to their relatives even if they already know it. The policy linked single confidentiality contributes to this practice. Though some people are against the policy, the extent and alternatives to it are not known hence the rationale for this study.

Objective: To determine community attitude towards policy linked single confidentiality of HIV sero status.

Methods: Data was collected from July to August 1999 through in-depth interviews with 23 care providers, group interviews with key informants from modern and traditional health care facilities, religious and government leaders of Kalemera ward, Magu district. Questionnaires were administered to 143 community members were selected conveniently to represent different villages and sub-villages in the ward.

Results:

Majority of community members to whom questionnaires were administered. 110/143 (77%), were against the present policy which encourage confidentiality between doctor and patient with regard to sero status of the patient. Half of them, (55/110 (50%) would prefer both the patient and his/her close care provider to be told the sero status while 25% of them would prefer relative(s) only to be told. The consensus from group interviews was that the patients' sero status should neither be revealed to patients nor to relatives especially spouses. All care providers preferred to be told the HIV sero status of their patients.

Conclusions: There is a strong disagreement among community members on the current policy on single confidentiality. Therefore there is a need to revise the current policy so that care providers are informed as well on the HIV sero status of the patient they are caring for. The health sector reforms should take this view into consideration.

THE HEALTH REFERRAL SYSTEM FOR AIDS AND CHRONICALLY ILL PEOPLE: AVAILABILITY AND FUNCTIONALITY OF THE SERVICE IN KALEMELA WARD, MAGU DISTRICT

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Background: In Tanzania the health referral system assumes a pyramidal pattern home based care, dispensary, health centre, district hospital, regional hospital and consultant hospital. However, the system does not function properly due to under-funding , weak management systems and poor communications. Consequently access to health services in rural areas is poor, staffing, equipment and supplies insufficient.

Objective: To determine the available referral system and how it functions in the community.

Methods: Descriptive case study. Convenient sampling was used. Data collection tools indepth interviews:patients/careproviders; group interviews: key informants/health providers: FGDs adult men/women/traditional, 323 subjects participated. Informed consent sought in

advance and people had right to refuse participation.

Findings: In Kalemela people's health-seeking behaviour assumes a combination of traditional and modern treatment, and starting point is self-medication at home, using modern medicines or herbs. Outside this patient's treatment avenues are: pharmacy shop, dispensary; health centre, hospital and consultant hospital, order notwithstanding. Levels of care and services offered by referral system in any facility are not distinguishable from those offered by one at lower level exception are cost higher at higher levels. Patients willing and financially able to go to higher levels are not free to bypass a lower level, and is usually to secure better quality services, transport is inadequate and costly thus only patients proximal to facility are treated. A large number of traditional healers exists in the ward, signifying high utilization of their services by community, which funding supports belief of assigning witchcraft to AIDS and most chronic illnesses.

Conclusion: Referral system in Kalemela ward is interplay of service by modern and traditional facilities but is hampered by inadequate financing, weak management, poor communications and community poverty the Government have to implement immediately the proposed health sector reform.

SESSION 7: OTHER IMPORTANT RESEARCH PAPERS

MYTOMY IN PEDIATRIC NEUROGENIC BLADDER REPORT OF A METHOD

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The main aim in treatment of hypersonic neurogenic bladder is focused on lowering intravesical hypertension, increasing capacity and compliance with liquidation of unstable detrusor contractions. Authors report a method-autoaugmentation applied to 6 children with neurogenic bladder and vesicoureteral reflux (VUR) with a follow-up of 5 years; results satisfactory: an adequate increase *in bladder volume* and compliance, decreased intravesical pressure, liquidation of uninhibited detrusor contractions and spontaneous disappearance of VUR in 3 patients. Autoaugmentation was combined with hydraulic dissension of the bladder with courage soon after the operation. The surgical approach is simple and uncomplicated. Urinary bladder is filled with normal saline. Posterior and lateral bladder walls are mobilized. Three or four vertical incisions are made on the lateral and posterior walls from bladder fundus to the apex. Bladder mucosa should be left intact. During the procedure, care must be taken not to destroy big blood vessels of the bladder wall, so as not to compromise blood supply of the wall (segment) in between incisions. Urinary bladder is drained by Foley catheter, a Penrose drain is left paravesically.

INTRABLADDER URETEROUREROSTOMY FOR VESICOURETERAL REFLUX IN DUPLEX URETERS- A METHODS FOR VUR CORRECTION

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Volgograd, Russia

We report a method-intravesical ui unterostomy for the treatment vesicoureteral reflux (VUR) in ureters 10 Children were operated. Indications for surgery were gross VI both ureters in 6 and in lower pole children. All patients had urinary tract infection before surgery. In all cases the results well. No postoperative complications noted. After opening the urinary bladders, both ureters are mobilized intravesically. The anterior wall of both ureters is incised from the orifice in a proximal direction length equal to the length of the desired submucosal tunnel during reimplantation. The lines of incision are 1mm lateral to the point of intimate joint of ureters. If tailoring of ureters is needed, the necessary width of ureteral wall flap is resented. In intimately joined medial walls of duplicated ureters, only lateral walls of ureters are sutured. If medial walls are not intimately joined, then the medial walls are also sutured. Afterwards Cohen's crosstrigonal ureterocystoneostomy is performed. Ureteral stenting is not used. All children received antibacterial prophylaxis for a period of one month. We consider that this is the surgical treatment of choice.

ADRENALINE INHIBITS NITRIC OXIDE PRODUCTION BY MACROPHAGES

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Macrophages are stimulated during infection to produce proinflammatory and anti-inflammatory mediators. Evidence shows that hormones play a role in the regulation of immune responses. Hormones produced during stress, like adrenaline, may depress immune function and predispose the host to infection. We examined the role of adrenaline, a hormone associated with acute stress, on the production of the macrophage microbicidal agent, nitric oxide, a potent microbicidal and cytotoxic molecular produced by activated macrophages and

other cells. Nitric oxide is a vasodilator and when produced in excess, results in septic shock. Septic shock, pathophysiological condition resulting from a cascade of deleterious events due to infection with gram negative bacteria, frequently has a fatal outcome due to the excessive release of TNF- α and NO by macrophages. Lipopolysaccharide (LPS) was used to stimulate macrophages for NO production in vitro and to determine the effect of macrophage-derived proinflammatory (TNF- α) versus inhibitory (IL-10) cytokines on its production. The effect of the hormone adrenaline on macrophage NO and cytokine responses to LPS was examined. Murine peritoneal macrophages were harvested, stimulated in vitro with *B. coli* lipopolysaccharide (LPS) for 48 hours and nitrite levels in the supernatants, determined in duplicate by the Griess reagent method. Adrenaline inhibited nitrite production in a dose-dependent manner. Additional experiments showed that adrenaline inhibits macrophage nitric oxide production through a mechanism employing beta-adrenergic receptors.

MORBIDITY PATTERN OF PARASITIC AND GENITO-URINARY INFECTIONS AMONG PATIENTS ATTENDING AMANI CLINIC

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A laboratory-based study was conducted in the Helminthology Laboratory of Amani Medical Research Centre to find out the prevalence of parasitic and genito-urinary infection in-patients attending at the Staff clinic. Stool and urine samples were collected from patients with symptoms related to intestinal parasitoses and genitourinary infections respectively. Skin snips for the diagnosis of *Onchocerca volvulus* were taken from those with symptoms simulating onchocerciasis. Stool was examined by the direct method. Urine was centrifuged before it was examined under the microscope. All specimens were examined under the microscope. A total number of 523 specimens were examined of which 326 (62.3%) were of stool and 94 (18.0%) were of urine. 103 people (19.7%) were examined for onchocerciasis. Ascariasis had a prevalence of 35% while that for Hookworm was 19.9%. Strongyloidiasis showed the lowest rate of 0.9%.

Of those with urinary symptoms, 16.0% had urinary schistosomiasis and 3.2% were positive for *Trichomonas vaginalis*. 59.2% of the skin snipped patients had onchocerciasis. It seems that parasitic and genito-urinary infections are still a problem in this part of the country. More studies need to be undertaken. Nevertheless were needed to improve our diagnostic techniques.

REFORMS AT THE DISTRICT LEVEL IN TANZANIA: DISTRICT HEALTH BOARDS

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Since the Harare Conference in 1983 and Bamako Initiative in 1987, the dominant paradigm for organization of health services in Tanzania has been that of "HEALTH DISTRICT". With support from the regions, districts are organizational and operational levels where integrated primary and secondary health care services are implemented in the context of decentralization. For the last 15 years, Tanzania has reorganised its health care system by giving more managerial autonomy to district levels. With these changes, two key questions remain, can the districts achieve their intended objectives? What form should future changes take? This paper examines these two issues and outlines some of the major changes currently taking place at the district level Tanzania.

POSTER PRESENTATIONS

NOTES AND RECORDS ON ONCHOCERCIASIS SURVEY IN TANZANIA

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Notes and records of onchocerciasis survey in Tanzania are presented. On people examined for microfilariae of *Onchocerca volvulus*, clinical manifestations and signs. Based on prevalence studies undertaken countrywide. The records can provide useful guidelines for further surveys and disease control; one of the national health programmes which is advocated by eliminating *Simulium* vectors using insecticides and the parasite by community distribution of ivermectin. The records also provide background information enumerated at village, locality and district levels, for disease natural history.

ONCHOCERCIASIS IN TANZANIA: PARASITOLOGICAL, CLINICAL AND SEROLOGICAL OBSERVATIONS

Mwaiko GL

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Parasitological, clinical and serological observations were made in Tanzania. The observations indicated that the disease was increasing in certain foci. This information was important when advocating control measures.

THE EMERGENCE AND RE-EMERGENCE OF COMMUNICABLE DISEASES: CHALLENGES FOR BETTER INTERVENTIONS

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Background: The regularity with which the World's Mass Media refers to communicable diseases has created a deceptive sense of familiarity with the phenomenon. In reality our knowledge of the facts is woefully inadequate due to the fact that low literacy rate, poverty

and lack of health services to the majority of the people, can be cited as being among the reasons for the spread of communicable diseases especially in the least developed countries in the last twenty years, with no signs of slowing down in some cases.

Objectives: To help the people's awareness of the scope and complexity of the problem of communicable disease including that of HIV and STDs and convinces them to change their sexual habit so as to minimize the spread and infection

Method: Sensitization through mass media seminars, workshops and house to house counseling with emphasis on abstinence and other religions principles in the case of HIV and STDs.

Results: Data, showing low infection rate of HIV and STDs in the Middle Eastern countries, which are Islamic — in the case. The adaptation of this example is discussed.

RE-EMERGENCE OF TUBERCULOSIS DISEASE GLOBALLY: CHALLENGES FOR BETTER INTERVENTIONS IN THE TANZANIAN CONTEXT AND PERSPECTIVE- AN OVERVIEW

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Objective: To demonstrate the challenges of tuberculosis disease globally in general, briefly and in Tanzania in particular to outline the formidably main challenges warranting better interventions now and in the 21st century services to control TB in Tanzania

Methods: From records and literature it is known that the National Tuberculosis and Leprosy Program was established in 1977 as a vertical programme country wide to prevent control, treat and cure tuberculosis and leprosy countrywide; with a combined multidrug, prolonged treatment, appropriately selected to Suit our financial situation by then. Cure rates have had been 43% then were improved to 79% by 1989 mainly due to the introduction of shortcourse chemotherapy since 1984. Leprosy has been reduced drastically, however, Tuberculosis persists and increases yearly. It was projected to reach 60,000 patients at the end of 1999. This is a challenge, which warrants better intervention measures.

Conclusion: Tuberculosis Disease in Tanzania is a number two killer of young people and adults. The challenges it poses have been identified to the extent that a three-year plan has been established since 1997-2000. It now remains to be implemented it fully and manage it appropriately.

THE HEALTH SECTOR REFORM FROM AN IMPLEMENTATION POINT OF VIEW: THE DSM MEDICAL OFFICE OF HEALTH/DUHP EXPERINCE

Mtasiwa D and Pichette P

The implementation of the Health Sector Reforms proposals in the Dar es Salaam Public Health Delivery System (DSMPHDS) proceeded both from a political, technical (clinical), administrative, managerial and organizational logic. From a political logic straight forward mechanisms were put in place to ensure the decentralization of the decision making processes both for staff and for the population. Health Management Teams were formally put in place in all tiers (Districts and Health Facilities). Decision-making processes were also decentralized further within the districts and hospitals for all tiers including their Mission, Mandates and Functions along with senior staffs job description and prerequisites Through a systemic approach, equilibrium was found between these various approaches, Indeed, all those systems have to be seen in interrelation which each other. The functioning of an organization may be seen as the co-ordination of the interaction of its various components .The main risks facing the sustainability of those achievements are related to its environment. Indeed, will the Dar es Salaam new RLG set up be capable of managing the new reformed health organization? Will the Government of Tanzania and the donor community continues Politically and financially support the reforms? To the level of the services. Health Boards were finally put in place in all districts and health facilities. A DSMPHDS Health Board Association was created in December 1999. From a technical logic were the outputs of the system, the health delivery services were defined through a Minimum (essential) Package of Health and related Administrative and Managerial Activities: From an administrative logic were the inputs of the system —its human, material, financial and information resources identified and administrative procedures implemented. From a managerial logic were the throughputs of the system or its processes identified. A systemic planning methodology was

elaborated. The methodology links together the capacity of the organization its resources, its processes and its delivery of services. The planning cycle, its monitoring, supervision and evaluation components was built in the plan of operations as to secure its implementation. A Standard Performance Control System was elaborated and its implementation started on a pilot basis in the current 1999-2000 plan operations. From an organization logic was the structural and functional components of a Health Delivery System identified for the specific environment of Dar es Salaam. A new organizational chart was formulated elaborated and implemented

HEALTH SECTOR REFORMS: A QUEST FOR MAINSTREAMING

Comoro CJ

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The term “Health Sector Reform” is increasingly becoming almost ubiquitous in Scientific Conferences of Health Scientists. However, there may be no definition agreeable to all scientists as to what constitutes “reform”. For our purposes, in this analysis “reform” may be deemed to be or connotes changes or transformation positive in nature and or orientation amounting to achieving either of the following a: (i) a re-arrangement (ii) a re-assembly (iii) a reconfiguration (iv) a re-constituting (v) a re-establishment (vi) a reformulation (vii) re-making (viii) re-organizing, or (ix) a re-working. Of an entity in question to become more inclusive, more collaborative and or optimally functional.

Objectives: The objective of this article is an attempt at an analytical discourse on ‘Health Sector Reform”, critically proposing to examine the subject intricately. Guiding Hypothesis: This analysis is premised on two main postulations delineated as here below: (1) In spite of the highly celebrated nature and trepidation gravitating around drives for reforms in Tanzania. Including the states own quest for conformity and compliance, not all sectors are amenable to reform. (2) Of those non-compliant ones the health sector towers the list if not the single most resistant.

Materials and Methods: The data and other material involved in this discourse derive from two main sources namely’ (I) extensive desk-top research of various publications for the retrieval of secondary data for complementary research and teaching purposes, (ii)

field engagement in health related behavioral research during the last decade of the departed century.

Results highlights and Discussion: Reforms and all its trepidation, which is a daily menu in various fora in Tanzania, is a direct result of intervention of the World Bank and the IMF. Even though negotiated the “reforms” knocking in our corridors are externally derived, top-down in orientation and may not necessarily work all the time. For conservative establishments with rigid orthodox ways and approaches, reforms are bitter pills. It will be argued in this analysis that whereas everybody seems to talk about “health sector reform” no body seems to do it. Furthermore, it will also be contended that the health sector in Tanzania as elsewhere, continues to be rigid and one of the least inclined to change or to forgo its orthodox traditions.

Conclusion: It will be our conclusion that the stance of the health sector is not only different from what the sector intends to achieve but also seriously a negation of the spirit of the Alma Ata. In the ultimate, the paper will propose concrete suggested recommendations.

NON-COMMUNICABLE DISEASES: A NEW SCOURGE TO HEALTH SYSTEMS IN AFRICA

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As we enter the new millennium, the health systems in Africa are faced with a dramatic increase in service demand from both communicable and non-communicable diseases. Health gains in the just ended century in Africa through better access to local health services, safe drinking water, better sanitation facilities and vaccinations which resulted in a drop of the number of deaths, are being offset by loses due to emerging diseases like HIV/AIDS, TB, Cancer and Heart diseases. The incidence of cancer in Africa has been increasing over the years, contrary to the once common belief that cancer is a problem of the rich countries. The same situation is also true for conditions such as strokes, hypertension, diabetes mellitus and other metabolic/degenerative diseases. The above health picture tells us that African countries are receiving a double blow in terms of increase in chronic non communicable disease and emerging new communicable diseases. This blow is hitting a

continent whose population are the poorest among the poor and whose countries are among the heaviest indebted in the world. It is a very dangerous and vicious cycle where poverty perpetuates disease while at the same time disease causes heavy economical losses aggravating poverty. This implies that urgent measures are required to prevent disaster. It is necessary that serious efforts to enhance positive changes in behaviour, environment, medical care (modern or traditional) and poverty alleviation be made. The Genetic Biological make up will be difficult to change, but if the above are made, susceptibility to disease will be greatly reduced. Research must provide the necessary back-up strategies in support of Health Sector Reforms in Africa to ensure success.

HEALTH SECTOR REFORMS AND ITS IMPLICATION ON HEALTH CARE PROVISION IN AFRICA

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National Institute for Medical Research

The main goal of any health system is to bring better and equitable health care to the population it serves. This requires a continuous improvement of both quality and service throughput. Health systems throughout the world are therefore searching for better ways of regulating, financing and delivering their services. Africa is not an exception. The pursuit for better ways of responding to present and future challenges has also been agitated by growing number options available for achieving national health policy objectives. Given the varied nature of health systems in the region, there is no "one size fits all" package of measures that constitutes health reform. Precise agenda for reforms will have to be defined by reviewing how well existing policies, institutions, structures and systems deal with issues of efficiency, equity and cost-containment. Within this context, most Africa governments will have to make decisions on whether to reform health care delivery institutions or take an alternative route and reform health system as whole. The latter imply that the reforms of policies and institutions within the traditionally defined health sector merely focuses on a small part of a problem, the health sector. On the other hand, the process of health sector reform in Africa provides an opportunity to redefine approaches to improving health status. This can be attained through broad approaches to the reform of public health policy and through activities

of agencies in other sectors such as education, housing, employment and agriculture. While the two approaches are not incompatible they put most reforms in Africa at the crossroads. Using Tanzania as an example, this paper examines the two options and their implications on the achievement of better and equitable health in the region.

CLOSING ADDRESS

Mr. Chairman

Distinguished Guests

Conference Participants

Ladies and Gentlemen

First of all I wish to thank the Organizing Committee for inviting me to close this conference and meeting of the Forum. Secondly, I wish to thank the Committee members and all those who in one way or another made this conference such a success. Last but not least I wish to thank all those who made presentations (oral or posters) during the conference, and the participants in general for discussing them.

I followed up the proceedings of the symposium and conference with keen interest, and I am reliably informed that the objectives were met. Certainly, there was a forum for interaction and exchange of views not only between researchers but also between researchers and research clients. I have also been informed of the exchanges of experiences between countries in Africa and beyond. As a result of the interactions during the seminar, it is expected that research collaboration, networking and partnership have been promoted and strengthened between researchers, institutions and donors. The list of the recommendations, which we have just received, indicates that some research results have been identified for immediate application. Furthermore the recommendations consist of researchable problems which were jointly identified by researchers and clients. To me this looks like pluralistic democracy about which we hear so much but least practiced certainly not by researchers in human health sciences. We are also looking forward for a publication of the conference proceedings, and repackaged information for use by the lay community, policy and decision-



makers. I understand the National Institute for Medical Research and the National Health Research Forum organized this conference with financial support from other individuals and institutions. The collaboration is explaining to those committed to achieving the national goal of attaining global health equity.

I know you have had a busy day and therefore do not want to tire you further. As I wish each of you a safe journey back home, I declare the Eighteenth Annual Joint Scientific Conference of the National Institute for Medical Research officially closed.

Financial Report for 18th NIMR Annual Joint Scientific

The 18th National Institute for Medical Research which took place at the Bahari Beach Hotel in Dar es Salaam Tanzania cost US \$ 44,370.45 or TAS 34,496,393.00. The actual expenditure in most of the expenditure categories exceeded the budgeted amounts. There was a negative variance between the actual expenses and the budget of US\$ 3,595.95 or TAS 2,876,793.00. The variation was mainly contributed by expenses on per diem and out of pocket expenses.

The actual expenses incurred and met in Tanzanian shillings were converted into US dollars at an exchange rate of TAS 800/= to the US dollar. The nature of activity and the corresponding expenditure are as per attached schedule. The schedule also shows the donors/contributors to the budget.

The 18th NIMR Annual Joint Scientific Conference was 95.50% financed by the National Institute for Medical Research; and only 4.5% of the total expenditure was financed by externally generated funds.

Actual Expenditure vs Budget

	Budget		Actual		Variance	
	TAS	US \$	TAS	US\$	TAS	US\$
Hotel Accommodation, Lunch, N Breaks etc.	17,195,000.00	21,493.75	17,416,892.00	21,771.10	(221,892.00)	(277.35)
Halls and Equipments Rentals	1,250,000.00	1,562.50	639,334.00	799.15	610,666.00	763.35
Transport and Fares	1,326,000.00	1,657.50	1,908,567.00	2,385.70	(582,567.00)	(728.20)
Out of Pocket and Per Diems	8,485,000.00	10,606.25	10,469,000.00	13,086.25	(1,984,000.00)	(2,480.00)
Honoraria, Rapporteurs etc	1,055,000.00	1,318.75	840,000.00	1,050.00	215,000.00	268.75
Stationery and Printing	855,600.00	1,069.5	1,467,600.00	1,834.50	(612,000.00)	(765.00)
Promotional Items	1,085,000.00	1,356.25	1,005,000.00	1,256.25	80,000.00	100.00
Reception/Representation	1,368,000.00	1,710.00	1,750,000.00	2,18.50	(382,000.00)	(477.50)

	32,619,600.00	40,774.50	35,496,393.00	44,370.45	(2,876,793.00)	(3,595.95)
<i>Sources of Funds</i>						

• TANESA – 2 Programme
 • Urban Health
 • National Institute for Medical Research

	1,200,000.00	1,500.00	
	400,000.00	500.00	
	33,896,393.00	42,370.55	
	35,496,393.00	44,370.45	

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